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THE *SOCIAL OPINIONS INVENTORY* AS A MEASURE OF SOCIAL MATURITY

CECILE BOLTON FINLEY
Montgomery County Public Schools, Rockville, Maryland

This study was designed to test the hypothesis that social maturity can be measured as specifically in units of social age as mental maturity in units of mental age. The study has since gone beyond the stage of design into the stage of testing the usefulness of the scale developed for solving many problems in social and applied psychology, although the standardization studies alone are reported here.[1]

PROCEDURE[2]

Social maturity was defined for the purposes of this study as an individual's position on an age scale with regard to the variety, the scope, and the effectiveness of his cooperative activities measured directly in terms of these activities and indirectly in terms of his evaluative attitudes about, and his feelings of responsibility for, other individuals and their cooperative undertakings.

The subject is required to respond in Parts I, II, and III of the Social Opinions Inventory to a list of 125 people and social institutions. First are listed people differing from him in as wide a variety of ways as it was possible to discover. The list includes individuals of such varying significances for him as the following: mothers, teachers, ministers, friendly

[1] The work reported is part of a ten-year program of research begun at the University of Virginia and continued at Hollins College. It has involved the analysis of some 5000 inventories returned from clubs, organizations and institutions widely scattered over the country.

[2] Preliminary standardization studies were made possible by a grant from the Virginia Academy of Science; two cooperative studies in which the colleges of Hollins, Hood, Mary Washington, Roanoke, South West Missouri State Teachers, and Sweet Briar participated were sponsored by the Psychological Section of the Virginia Academy of Science; other studies provided laboratory exercises for graduate and selected undergraduate students.

neighbors, bullies, polite people, tax collectors, bankers, policemen, welfare workers, friends, unfriendly people, scientists, rowdies, doctors, storekeepers, farmers, factory workers, judges, cheaters, college women, biologists, babies, Jewish people, Negro school teachers, a list of altogether 25 persons. Next on the list are community institutions, organizations or activities involving each of these persons in turn—families, school boards, church councils, etc. In order, are then listed institutions or activities involving each person at the state, national, and international levels—parent-teacher meetings . . ., national congresses of parents and teachers . . ., social security laws.

The subject is asked in a form modeled after the form of the Pressey Interest Attitude Test (15) first to read the list of words, and as he reads to place an *X* by each word which names someone or something that the world would be better off without. His answers are scored as Part I of his total Inventory score. He is then asked to read the list a second time and this time to place, as he reads, a circle around each word which names someone or something the world is (or would be) better with. His circles provide the score for Part II of the Inventory. He is asked to read the list a third time in Part III, and to place a check by every word naming someone or something that does not concern him personally in any way, whose complete destruction or creation would not affect him in any way.

The Social Opinions Inventory, also like the Pressey Interest Attitude Test, is so constructed that it can be administered to children from the sixth grade through high school years, to college students and to adults. The scores of the youngest children depend almost entirely upon their reactions to the 25 individuals, since the random marking of words, if they mark them at all, which are not meaningful to them tends to reduce their positive score to zero on the remaining 100 items, as shown in the following section. They may check many items throughout the entire list to indicate that these refer to people or things that do not concern them in any way, but this tendency of young children to express lack of concern for organizations and individuals not known to them personally is particularly characteristic, just as few expressions of unconcern are characteristic of the mature adults. In the same way they may strike out from the social distance scale words with which they are unfamiliar, but again this is characteristic of the younger child.

Among the 125 words are scattered 20 which refer to people or activities chosen for their antisocial connotations, items chosen because they would presumably be less often endorsed by children as they matured in our society. These 20 words did serve to discourage indiscriminate circling, although they did not contribute valid score points in themselves.

In Part IV of the Social Opinions Inventory, which has the form of a modified Bogardus Social Distance Scale, the subject is asked to inspect five lists. From the first he is asked to strike out the names of those persons (kinds of people, that is) whom he would not willingly admit to his fam-

ily (Negro, foreign noble, Chinese . . .); from the second, those whom he would not willingly have as friends (reformed convict, German, Democrat . . .); from the third, the names of those whom he would not admit to his clubs or other local organizations (labor organizer, divorced person, prohibitionist . . .); from the fourth, the names of those whom he would not admit to this nation (Chinese, Russians, gypsies . . .); and from the fifth, the names of those countries which he would not admit to an international organization to which his country belonged (France, Turkey, England . . .).

Scoring

Each approval which the subject expresses of one of the 105 social items described above is scored +1, while each approval of the 20 items having antisocial connotations is scored −5; random approvals and disapprovals therefore reduce or tend to reduce the positive score on these items to zero. Each disapproval of an antisocial item scores +1, so that a score of 125 is possible. All other responses—checks in Part III to express lack of concern, or strikeouts in Part IV to indicate exclusions, score −1 each. The score for an item marked for neither approval nor disapproval is 0. The total social maturity score therefore represents the excess of approvals and disapprovals commonly expressed by criterion groups over approvals and disapprovals not commonly expressed by them as well as over expressions of unconcern and feelings of social distance. Significant subscores can be found for the successive groups of 25 items dealing separately with: (1) the individual; (2) the community; (3) the state; (4) the nation; (5) international organizations. Subscores based upon parts I-IV of the Inventory yield important information also. They represent (I) approvals and disapprovals not commonly expressed; (II) approvals and disapprovals commonly expressed; (III) expressions of unconcern; (IV) feelings of social distance. While the highest possible total score on the Inventory is 125, scores as low as −180 have been recorded. Check marks in Part III indicating unconcern and strikeouts in Part IV make possible scores lower than −125.

The median scores on the Social Opinions Inventory characteristic of subjects at various age-grade levels are shown in Table 1. There is a clear and steady progression in the magnitudes of the median scores from the median of −22 at the sixth grade level to that of +94 at the mature adult level. Items in successive trial forms of the Inventory were deleted and tentative substitutions made whenever an item was not marked for approval (or in the 20 instances noted, for disapproval) by progressively larger per cents of subjects at each age-grade level, from the sixth grade to the adult.

The scores given in Table 1 are based upon samples of opinion in the public school system of a town in Virginia, a college in Virginia, and adults chosen from a number of localities as later described. The median scores of

TABLE 1

PRELIMINARY NORMS FOR THE *SOCIAL OPINIONS INVENTORY* STANDARDIZED AS A TEST OF SOCIAL MATURITY

Group	*N*	*Median*	*PE*
Grade 6	154	—22	28
Grade 7	66	— 7	29
Grade 8	118	3	28
Grade 10	100	15	28
Grade 12	78	18	26
College, Year I	96	26	26
College, Year IV	60	46	30
Adult, Unselected	125	61	21
Adult, Criterion	35	94	11

students in six other liberal arts colleges in which opinion was sampled showed similar increases between the freshman and senior years.

Test-Retest Reliability

The test-retest reliability coefficient for the Social Opinions Inventory for a single college class, when the Inventory was given to the class to mark again after a six months interval, was .84.

Validity of the Social Opinions Inventory as a Test of Social Maturity

The possibility that the age-grade progressions just presented were dependent upon age-grade changes in intelligence, emotional maturity or adjustment, or economic status was first considered, but the correlation of the inventory scores of eighth grade children with their scores on the Otis Self-Administering Test of Mental Ability and with the economic status of their parents were each approximately zero,[3] and the correlations of the inventory scores of college students with their scores on the Pressey Interest Attitude Test and the Bell Adjustment Test were also approximately zero.

The validity of the Social Opinions Inventory as a test of social maturity for adults was tested by means of criterion groups. An active committee of the Society for the Psychological Study of Social Issues, composed largely of professors well known in the field of social psychology, was chosen as a group demonstrably knowing something of, interested in, and participating in social affairs of both broad and limited scope. A second group of adults was chosen by a member of the psychology department at Harvard University, colleagues and advanced graduate students in psychology and soci-

[3] Paper by Ruth Payne, a laboratory project in Statistics, University of Virginia.

ology who, in her opinion, rated high in social maturity as it has been defined. A third group of adults was chosen from among associates at the University of Virginia as students of social problems who were also active participants in social affairs not only at the local but at the broader levels or organization. The median score and the range of scores for each of these small groups were very similar and these 35 adults together constitute the socially mature criterion group whose scores are shown in Table 1. These scores yield a median of +94 and a range from +32 to +125.

A second criterion group chosen on the basis of antisocial behavior consisted of 12 new admissions to a state prison, ranging in age from 18 to 32 years. Their Beta IQs fell between 82 and 119, lower certainly than those of the members of the first criterion group, but no relationship between scores on the Social Opinions Inventory and intelligence has appeared for individuals whose IQs fall within these ranges. The median scores of the prisoners on the inventory was —2, and their scores ranged from +47 to —114 (47, 38, 31, 26, 23, 9, —13, —15, —17, —20, —45, —114). The average man of the prison group had completed the tenth grade only, and while differences in educational opportunity will explain in some part the marked difference in the scores of these two groups, the median score of the tenth grade children sampled was +15, and the median score found in another study, of a sample of adults having only a high school education or less, was +39. Also the median score of a second group of prisoners selected by trusties and passed upon by the prison psychologist as "social—easiest to get along men," was +28. The scores ranged from +87 to —21. About half of the latter group of prisoners had completed four years in high school, while the remainder had attended for one to three years, and the mental ages of the two groups were similar. Three small studies of the scores of delinquents and unselected school children of comparable age and grade were made. The scores of the delinquents were in each case lower than those of the unselected children. Three delinquent groups were selected in three different ways and in three different localities. In one instance the delinquent pupils were named by the school principal; in one, the inventories were given at a detention home; in another, by a juvenile court worker. The median scores and the range of the scores for one sample

TABLE 2

SCORES OF JUVENILE DELINQUENTS AND PRISONERS ON THE *SOCIAL OPINIONS INVENTORY*

Group	*N*	*Median*	*Range*
Juvenile Delinquents	15	—15	—110 to 26
Prisoners	12	— 2	—114 to 47

of juvenile delinquents[4] and one sample of prisoners[5] are given in Table 2. While the number of cases presented is small, similar results were obtained from the other small samples employed.

Validation studies for high school and college students involved peer ratings by means of a modified Moreno technique[6] according to which students were chosen in a mock election to act on hypothetical student committees or to represent opposite antisocial groups. The directions for choosing these committees are given in the manual for the Social Opinions Inventory. Students were given a mimeotyped list of their classmates and were asked to select members, by listing the appropriate numbers by their names, for committees 1, 2, and 3; or antisocial groups 3, 4, and 5. Committee 1, a committee on school spirit, was to be composed of classmates broadly active in school affairs; committee 2, a statewide committee on student activities, was to be composed of students characteristically interested in affairs broader than those of their own school, home, or community. Committee 3 was a lunch room committee for which members were to be selected because of their dependability in carrying out tasks that had been assigned them. Members of the three antisocial groups were to be chosen because of characteristics listed and described as just the opposite of those desirable for membership on the committees. Each vote received by a student which placed him on a social committee gave him a vote-score of +1; each vote which placed him in an antisocial group gave him a score of −1. His total student vote-score was the algebraic sum of these points. The scores constitute a measure of the variety, the scope, and the effectiveness of an individual's cooperative behavior as seen by his peers. Correlations between these student vote-scores and scores on the Social Opinions Inventory are given in Table 3.

TABLE 3

CORRELATIONS BETWEEN SCORES ON THE *SOCIAL OPINIONS INVENTORY* AND STUDENT VOTE-SCORES

Group	*N*	*r*
High School Seniors	51	.55
College Seniors	58	.54

The correlations above, if they are to be taken as validity coefficients representing the sole evidence that the inventory scores are related to social

[4] Study by Frances Penton and Jean Prieur, Hollins College.

[5] Studies by Elizabeth Williams, Mary Wilcox, and Joy Wright, Hollins College; and A. R. Young, University of Virginia.

[6] Devised by Antoinette Skinner, University of Virginia.

maturity as defined above, are low, but they do add evidence that there is a marked relationship between scores on the Social Opinions Inventory and expectations of socially mature behavior registered by the votes of classmates. Taken in conjunction with the evidence that the scores are related in the case of adults to socially mature behavior, and the evidence which follows that they are related to the social experiences of children, the coefficients are large enough to suggest strongly that with further modifications by substitutions in the inventory (and improved election techniques, or perhaps through the use of criterion groups for school children), the validity of the inventory as a test of the social maturity of school children and college students can be established and norms provided which have been derived from nationwide samples. The sizes of the correlation coefficients if corrected for attenuation would be larger than they now appear because of the unreliability of the student vote-score as a criterion. Also, by the use of election techniques, restricted necessarily to a group small enough for the members to be well known to each other, the range of maturity within the group was restricted, and the order of correlation to be expected reduced.

A study of the opinions of rural, small town and city children suggests further that children's scores on the Social Opinions Inventory depend upon the breadth, range and satisfyingness of the social experiences, at least if the assumption is granted that these are greater for children in the city than the town, and in the town than in the rural areas. Eighth grade and twelfth grade children's scores were compared in rural, town and city schools, and very large differences in the median scores of the eighth grade children appeared, varying in the expected direction, the country median being —6, the town +3, and the city +16. The median scores of the senior high school students also varied in the expected direction the medians being +14, +18, and +46 respectively. Although there were marked differences in the educational advantages of the families in the three areas, the extent of the advantages did not vary in direct relationship to the size of the area since the town was a university one. It is also unlikely that religious influences were progressively more effective from rural to city areas in promoting social maturity, although more complete studies of such influences are needed since religious denominations were not equally represented in the three areas.

The validity of the Social Opinions Inventory as a test of social maturity rests then upon, or can be established through, we believe, at least three different lines of evidence: comparisons of the scores of criterion groups of adults—social, unselected, and antisocial; comparisons of student election scores with Social Opinions Inventory scores; and further comparisons of the scores of city children who have engaged successfully in many cooperative activities, children from towns offering fewer possibilities for successful cooperative activities, and rural children who have had very limited social experiences; also, comparisons of successive scores made by children in the

process of exhibiting, according to their teachers and their classmates, marked changes in their social behavior. (Some very interesting results have already been found in a study of this latter kind.)[7]

Discussion

Few books or articles on the subject of social maturity have appeared, although most textbooks in the field of child psychology include at least a chapter on the subject, and Luella Cole in *Attaining Maturity* (5) and Pressey and Robinson in *Psychology and the New Education* (16) develop in their chapters a concept of social maturity broad enough to support the definition which we are proposing in place of the somewhat more limited concept inherent in the Vineland Social Maturity Scale constructed by Doll (6). (His scale rates the ability to acquire with increasing age increasingly complex self-directive habits which are useful in simple group living. It does not rate the ability to cooperate in the broader ways demanded in a very complex society, and is limited at the upper end in its age range. His scale provided a basis, however, for Weitzman's extension in group test form to include items for persons sixteen through twenty-four years of age.) Weitzman (18) compared groups of employed persons, college students, C.C.C. enrollees, and unemployed persons, and broadened the definition of the term social maturity.

While there have been numerous studies of changes in the attitudes of students in certain specific ways during the pursuit of a liberal arts education, or after particular college experiences, attitudes classified as liberal or illiberal, prejudiced or unprejudiced, etc., there are no studies concerned directly with these changes when they are rated on an age, or maturity scale; nor of the changes in students' overall attitudes toward their fellows, broadly sampled, and toward typical social institutions of their own day. The changes reported are almost universally in the direction of greater liberality and less prejudice. They are undoubtedly related to some of the age-grade changes sampled by the Social Opinions Inventory, although it was not constructed to sample them as such. A study by Cantey and Mull (11) is somewhat more nearly related to the present one in that they made use of the scores on the Gundlach questionnaire of psychologists as a criterion group (believed by them to be liberal, progressive and democratic) for comparison with the opinions of college freshmen and seniors. The opinions of the seniors more nearly resembled those of the psychologists than did the freshman opinions.

Liberalness in the attitudes of college students was found by Fay and Middleton (7) to vary in direct relationship to the sizes of the hometowns of the students, just as the scores on the Social Opinions Inventory increased

[7] Copies of the Social Opinions Inventory with a manual containing preliminary norms can be obtained from the author.

with the increasing size of the population in the area in which the opinions of the children were sampled.

Theodore Newcomb made an extensive study of personality and the acceptance of social change among student groups at Bennington College, which he reviewed in *Personality and Social Change* (12). He concludes, "that Bennington students show a significant change in social attitudes, particularly those measured by the scale labeled *Political Economic Progressivism* (P.E.P.) between freshman and senior years in college (12, p. 146)." He analysed the relationship between students' values, courses of study, voting records, negativism, acceptance at Bennington, participation in community activities, and found that students with high P.E.P. scores were higher in theoretical and aesthetic values, less negativisitic, better accepted, and more active participants in community life than students making low scores. A number of the findings in this study are closely related to his.

Although age-grade scales for rating the social behavior of school children, college students, and adults (with the exception of Weitzman's extension of Doll's scale) are not available, there are excellent preschool scales and techniques for observation and classification of social behavior by Buehler (1), Bridges (4), Gesell (10), and Parten (14).

There are two unpublished papers on changes in social maturity, as measured by the Social Opinions Inventory, from the freshman to the senior year in college, one by Elise Gamble and Kathryn Hill (9) and one by Shirley Anne Tuska (17).

Conclusion

Social maturity defined as an individual's position on an age-grade scale with reference to the variety, the scope and the effectiveness of his co-operative behavior can be measured indirectly with at least some degree of predictive success from the sixth grade through college and adult levels of maturity by means of the Social Opinions Inventory, a scale of evaluative attitudes regarding a wide variety of individuals and social institutions.

Summary

A description of the Social Opinions Inventory has been presented with standardization and validation data for its use as a test of social maturity for upper elementary, high school, and for college students and adults.

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SYMPTOMS OF MALADJUSTMENT DIFFERENTIATING YOUNG STUTTERERS FROM NON-STUTTERERS

JOHN P. MONCUR
University of California, Los Angeles

Personality characteristics and emotional disturbances in young stutterers have been variously described in earlier studies by psychologists and speech correctionists, but few investigators, if any, have made a systematic attempt to analyze a large number of these symptoms of maladjustment in pair-matched groups of stutterers and non-stutterers. In a recent investigation (5) the present writer made a study of a wide range of environmental influences upon stutterers and non-stutterers. Since the investigation included both stutterers and non-stutterers, it was necessary to evaluate the children not only with regard to their non-fluent speech patterns, but with regard to other symptoms of maladjustment as well. While much of the information on environmental factors has been reported elsewhere (5, 6), the present investigator has not had time to gather all data pertaining to the symptomatology of maladjustment and to make a systematic analysis until the present time. From the outset several questions were posed, namely, "Do stutterers possess symptoms of maladjustment other than the stuttering itself?"; "Do stutterers display significantly more of these than does a random sample of non-stuttering children?"; and lastly, "Which symptoms (if any) seem to be the most characteristic of stuttering children?"

In making a study of the symptoms of maladjustment in children, it is well to keep in mind that the dynamisms of adjustment, as they are called by both psychologists and psychiatrists, are common to both normal and abnormal persons. In defining these dynamisms (mental mechanisms) one writer states:

> Mental mechanisms are the devices or methods which individuals use in attempting to maintain their self-respect or prestige when they meet obstacles which they cannot overcome (9).

The dynamisms should not be considered symptoms of personality disorder except in those extreme forms usually associated with psychological abnormality. Thorpe (8) points out that in classifying dynamisms from the mental hygiene standpoint, it has become customary to categorize them in terms of their social acceptability and the characteristics of the responses they represent. He cites Shaffer's classification as follows: (*a*) adjustment by defense (compensation, rationalization), (*b*) adjustment by withdrawing (negativism, phantasy, regression), (*c*) adjustments involving fear and

repression (phobias, repressions), (*d*) adjustment by ailments (hysteria and other forms of psychoneurosis), and (*e*) persistent non-adjustive reactions (anxiety, worry, "nervousness").

The symptoms of maladjustment are usually danger signals of underlying personality disorders. These signals may appear in a variety of forms, including physical signs, social attitudes, and deviations in behavior. Some of the physical signs which may be regarded as indications of conflict, frustration, or emotional distress may be listed as follows: stuttering, twitching, nervous spasms or tics, constantly drumming with feet or fingers, making faces, biting nails, lying awake at night, having nightmares or night terrors, walking or talking in sleep, restlessness in sleep, frequent vomiting, enuresis or encopresis, constipation, and digestive disturbances. Other deviations in behavior and social attitudes indicating maladjustment may include temper tantrums, disposition to hate people, persistent feelings of inferiority (as shown by excessive embarrassment), being spiteful, worrying unduly, becoming highly sensitive, talking blusteringly or loudly, extreme timidity, regression, lying, masturbation, fighting, disobedience, stubbornness, voluntary mutism, poor work in school, dull, slow manner, no ambition, crying easily, negativism, and others.

Procedure

Two methods of obtaining information regarding the symptoms of maladjustment were employed: (*a*) direct observation of the child by the present investigator, both at school and at home, and (*b*) gathering information from the mother in a personal interview at home. While it was not feasible to include all of the symptoms of maladjustment listed earlier, the following items, which were felt to be representative, were selected: excessive shyness, sadness, nervousness, aggressiveness, self-consciousness, melancholia, negativism, daydreaming, nail biting, mouth habits, constipation, nervous spasms or tics, thumb sucking, and emotional vomiting and weeping, having specific fears, fighting with others, being the aggressor in these fights, quarreling excessively with others, possessing imaginary playmates, being a "fussy" eater, having nightmares or night terrors, wetting the bed, and having temper tantrums. A question was evolved for each of these symptoms and was constructed in such a way as to elicit a definite "yes" or "no" response from the parent—a factor which facilitated the statistical analysis of the data. A chi-square test for correlated samples (4) was applied to the data gathered from the mothers.

Subjects

All children included in the present investigation were made available through the cooperation of the Los Angeles School System in Southern California. The stutterers group included 42 boys and 6 girls ranging in age from 62 to 98 months (median, 79.6). These children were diagnosed

as stutterers by their mothers, classroom teachers, and the school speech correctionists before being examined by the present investigator. Where the hesitations in speech flow were not accompanied by physical characteristics of stuttering, such as eye blinking, facial grimaces, abnormalities in breathing, and the like, the child was excluded from the study, and in the final analysis only "severe" stutterers were used in the stuttering group. The non-stutterers were chosen at random from the State of California roll sheets, so that each child closely matched one of the children included in the stutterers group in age, sex, school placement, and residential area (approximately). This group likewise consisted of 42 boys and 6 girls ranging in age from 65 to 95 months (median, 80.2). The matching according to age, sex, and school placement was complete and exact, but residential area could only be approximate; for example, if a child came from an exclusive district in Beverly Hills, he was paired with a child from the same area, if he came from a tract area in the San Fernando Valley (which many of them did), he was likewise matched with a child from that area. It should be emphasized that the children in the non-stuttering group were chosen for two reasons only: (*a*) that they exhibited no symptoms of stuttering, both at the time of the examination and earlier, and (*b*) that they matched the stuttering pair according to the pairing criteria.

Findings

The findings of the present investigation indicate that young stutterers on the whole display several symptoms of maladjustment other than stuttering itself. Analysis of Figure 1 reveals that all stutterers, without exception,

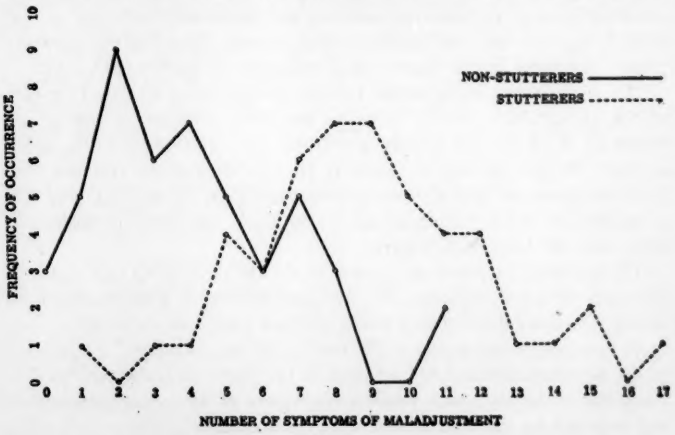

Figure 1—Number and Frequency of Symptoms of Maladjustment Reported for Stutterers and Non-Stutterers.

TABLE 1

NUMBER OF SYMPTOMS OF MALADJUSTMENT RECORDED FOR FOR EACH MATCHED PAIR

Pair No.	*Non-Stut.*	*Stut.*	*Pair No.*	*Non-Stut.*	*Stut.*	*Pair No.*	*Non-Stut.*	*Stut.*
1	3	17	17	8	11	33* ...	4	4
2	2	12	18	3	8	34	8	11
3	4	9	19† ...	7	5	35	7	9
4	6	8	20† ...	11	7	36	5	14
5† ...	4	1	21	1	3	37	3	7
6	6	10	22	2	11	38	8	12
7* ...	7	7	23	2	12	39	7	10
8† ...	6	5	24	2	8	40	4	9
9	1	6	25	2	7	41	5	7
10	7	11	26	4	15	42	5	9
11	4	8	27	5	8	43	3	15
12	2	12	28	2	13	44	2	6
13	1	10	29	5	9	45	3	8
14	0	10	30	3	9	46	1	8
15	0	10	31	0	5	47	2	6
16	4	9	32	1	7	48† ...	11	5

* Denotes same number of maladjustive symptoms.
† Denotes fewer symptoms displayed by stutterer.

possessed additional symptoms of emotional disturbance and that the average for the group was 8.8 per stutterer, or more than twice as many as were reported for the non-stutterers. The range was from 1 to 17 symptoms (*SD*, 1.9). Based upon the material included in this study, the non-stutterers likewise revealed symptoms of maladjustment, averaging 4.0 per child, but in no way matched the number or range found in the stutterers' group. The range in this instance was zero to 11 symptoms (*SD*, 2.2).

An analysis was made of the number of symptoms displayed by each of the 48 matched pairs in order to determine whether or not certain stuttering children were heavily responsible for contributing to the above findings. As may be seen in Table 1, 41 pairs showed the stutterer with more symptoms of maladjustment, two pairs even in number, and five pairs revealed the non-stutterer as having more symptoms of maladjustment than did his paired stutterer.

Of particular interest to the present study was the finding that 11 of the 25 questions asked regarding the symptomatology of maladjustment revealed significant differences between the two groups of children.

In response to the question: "Is your child very nervous?" 13 per cent of the non-stutterers and 67 per cent of the stutterers answered "yes," a numerical difference which yields a chi square of 22.53, far greater than that required for the 1 per cent level of confidence.

Information was requested of the parents regarding indications of aggressive behavior displayed by their children. When asked whether they

felt that their child was aggressive in behavior, 6 per cent of the mothers of the non-stutterers and 59 per cent of the stutterers' mothers reported that their child was "very aggressive." Statistical analysis of these data yields a chi square of 17.64, also significant beyond the 1 per cent level of confidence. There is also a statistically significant difference between the number of children in each group (23 per cent non-stutterers and 56 per cent stutterers) who were reported by their mothers as having many "scraps" with other children (ch square, 7.53; $p < .01$). On a related item: "Is he the aggressor (in fights)?" 17 per cent of the mothers of the stutterers stated that their child usually started the fight (chi square, 6.26; $p < .05$). In response to the question: "Does your child often quarrel with his brothers and sisters?" 29 per cent of the non-stutterers' mothers and 54 per cent of the stutterers' mothers answered "yes" (chi square, 4.80; $p < .05$). The mothers of each child in the study were asked whether or not it was necessary to discipline her child very often; 13 per cent of the mothers of non-stutterers and 56 per cent of the mothers of stutterers responded in the affirmative; analysis of this difference results in a chi square of 14.23, which far exceeds that required for the 1 per cent level of significance.

According to some authorities, a possible sign of psychological disturbance is "fussiness" in eating. Data obtained concerning the "fussy" eater reveal that more mothers of stutterers than of non-stutterers regarded their child as a problem eater (chi square, 11.56; $p < .01$).

Significant differences were also noted on items pertaining to having nightmares and night terrors (chi square, 6.00; $p < .05$), having mouth habits (chi square, 5.88; $p < .05$), nocturnal enuresis (chi square, 3.86; $p < .05$), and negativism (chi square, 4.27; $p < .05$). In all of the foregoing cases, more stutterers than non-stutterers were reported as possessing these symptoms of maladjustment.

Many items felt to reflect symptoms of maladjustment reveal little or no difference to exist between the two groups. Among these were questions concerning shyness, melancholia, self-consciousness, nail biting, constipation, vomiting spells, nervous spasms or tics, weeping or daydreaming, fears, self-pity, imaginary playmates, temper tantrums, and thumb sucking.

Summary

The findings of the present investigation suggest rather positive answers to the questions raised earlier in this paper: "Do stutterers possess symptoms of maladjustment other than stuttering itself?" "Do stutterers display significantly more of these when compared to a group of non-stuttering children?" and "Which symptoms seem to be the most characteristic of stuttering children?"

The answer to the first question is "yes," stutterers do display several symptoms of maladjustment aside from their speech problem, and in this

study of a limited number of symptoms of emotional disturbance averaged 8.8 per child, and ranged from 1 to 17 throughout the stuttering group.

In comparing the stutterers to the non-stutterers, it was found that in 41 pairs, the stutterers revealed more symptoms of maladjustment. That the non-stutterers averaged approximately four symptoms per child may seem mildly surprising, yet not distressingly so. One should remember that the non-stuttering children were *not* selected on the basis that they showed no signs of atypical interruptions in their speech flow which might be labeled "stuttering." That the stutterers averaged more than twice as many symptoms of maladaptive behavior as did the non-stutterers is more our concern, for it indicates what most psychologists have suspected, that the problem is much more widespread than just one of speech alone.

In answer to the last question, it may be stated that according to their parents, young stutterers characteristically appear to be very nervous, are enuretic, have nightmares and night terrors, display aggressive behavior, are "fussy" eaters, and need to be disciplined often. These findings seem to substantiate those of Glasner (2) who reported that 54 per cent of the 70 young stutterers included in his study were considered to be "feeding problems," 27 per cent enuretic, and 20 per cent had exaggerated fears or nightmares. He also revealed that over 50 per cent had more than two indications of emotional disturbances. The present study not only confirms Glasner's earlier report, but reveals that in comparison to non-stutterers, the stutterer shows many more signs of emotional disturbance.

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AGE TRENDS IN PREFERENCES FOR CERTAIN FACIAL PROPORTIONS

CHARLES TAYLOR[1] and GEORGE G. THOMPSON
Syracuse University

Recent experiments involving the effects of increasing chronological age on aesthetic preferences for rectangles of different proportions (4, 5, 7) have shown a developmental trend towards adult preferences for the so-called golden section ratio. The stimuli used for these experiments were a series of cardboard rectangles of varying width-length ratios. Austin and Sleight (1), in studying preferences for varying ratios in isosceles triangles, used a paired comparison technique to investigate preferences for golden section ratios. The findings of these studies lead to the question: Is there also a developmental trend in preferences for varying facial proportions?

This study was designed to determine the effects of increasing chronological age on preferences for different facial proportions. The face seems to be an important stimulus for the child almost from birth, providing many of the cues for social development (3, 6). An attempt was made to discover what preferences for facial proportions exist at an early age and whether there is increasing similarity to the preferences of adults as chronological age increases.

MATERIALS AND PROCEDURE

An artist constructed a picture which would conform to classical standards of facial proportion, as given by Leonardo daVinci, using a modern adaptation by Bement (2). The classical face was divided roughly into thirds from the hairline to the chin. The distance from nose to mouth was to be one-ninth of the total distance, the same distance as from the eye to the eyebrow. The mouth was to be one-third of the width of the face front at the level of the mouth. From this original simple straight-line drawing of a male, four series were constructed: (*a*) distance between eyes series; (*b*) length of nose series; (*c*) width of mouth series; and (*d*) thickness of lips series. The basic picture remained always the same except for the altered detail, always being copied directly. Variations were made by systematically moving the feature under consideration in two directions, shortening or lengthening the feature or space between features. A standard unit of increase or decrease which would allow two variations in either

[1] Now at Brigham Young University.

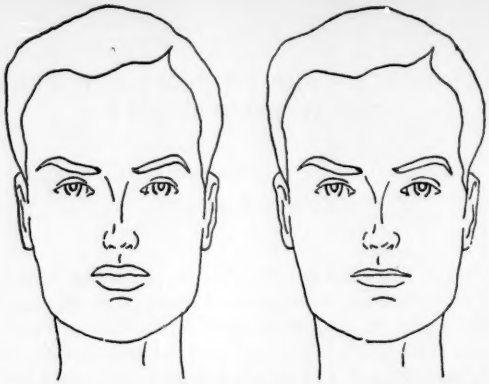

FIGURE 1—Pairing in Condition of "Variation of Thickness of Lips." (Figure on right is original figure, constructed from classical standards as given by daVinci; figure on left shows variation "very thick.")

direction and still permit the facial proportions to avoid caricature was chosen for each of the four conditions. In width of mouth, for example, the standard picture measured seven-eighths inch; the variations which were narrower than this original picture had mouths which measured five-eighths inch and six-eighths inch, respectively; the wider variations were one inch and one and one-eighth inch, respectively. In the width of mouth and thickness of lips series, some modeling of the mouth was necessary, but in the other two series, shifting without any feature alteration was possible. Each series, then, consisted of five pictures, including always the original picture (the picture which was constructed following the standard of daVinci) unchanged, two in which the interval (feature or distance) was increased and two in which it was decreased. An illustration is shown in Figure 1.

When the series was completed, the pictures were reproduced by mimeograph side by side to allow paired comparisons for each of the four series. The resulting pairs were stapled into a book containing 40 paired comparisons with positions randomized.

For the youngest group of subjects the testing was individual. The subject was asked to point to which of the pair he preferred, without any additional instructions as to what frame of reference he was to use. For older subjects a group presentation was used, with an answer sheet provided to record choices. The groups were asked to choose which one of the two they liked the better, with no statement as to standards of judging to be used. Although the older subjects frequently discussed possible ways of approaching the task, no statement was made concerning the purpose of the experiment.

TABLE 1

AVERAGE PROPORTION OF TIMES EACH PICTURE WAS CHOSEN IN PAIRED PRESENTATIONS OF VARIATIONS FROM AN ORIGINAL PICTURE: CONDITION I—THICKNESS OF LIPS

Group	*Very Thin*	*Thin*	*Original**	*Thick*	*Very Thick*
College ($N = 96$, Mean CA = 21.8) ...	.358	.546	.778	.498	.324
12th Grade ($N = 48$, Mean CA = 17.7)	.379	.529	.741	.492	.358
8th Grade ($N = 48$, Mean CA = 13.5) .	.404	.617	.669	.471	.342
4th Grade ($N = 48$, Mean CA = 9.7) ..	.504	.458	.550	.504	.483
2nd Grade ($N = 48$, Mean CA = 7.4) ..	.438	.525	.558	.556	.425

* This picture, constructed according to classical standards, remained constant throughout the series.

Equal numbers of boys and girls were used at each grade level and with the college group. There were 96 college students with a mean age of 21.8 years and 48 subjects each at the second, fourth, eighth and twelfth grade levels, with a mean age of 7.4, 9.7, 13.5 and 17.6 years respectively.

RESULTS AND DISCUSSION

For each of the four experimental conditions, tables were constructed showing proportions of the times that each of the five pictures was judged preferable to every other picture; in setting up the tables, .500 was considered as chance, or no preference shown, in the theoretical case of comparing a picture with itself. Each column, which expresses the proportion of times a picture was preferred to all other pictures, was averaged, giving

TABLE 2

AVERAGE PROPORTION OF TIMES EACH PICTURE WAS CHOSEN IN PAIRED PRESENTATIONS OF VARIATIONS FROM AN ORIGINAL PICTURE: CONDITION II—WIDTH OF MOUTH

Group	*Very Narrow*	*Narrow*	*Original**	*Wide*	*Very Wide*
College ($N = 96$, Mean CA = 21.8) ...	.204	.506	.661	.568	.521
12th Grade ($N = 48$, Mean CA = 17.7)	.221	.563	.633	.537	.546
8th Grade ($N = 48$, Mean CA = 13.5) .	.275	.546	.608	.525	.550
4th Grade ($N = 48$, Mean CA = 9.7) ..	.329	.583	.543	.549	.505
2nd Grade ($N = 48$, Mean CA = 7.4) ..	.404	.525	.537	.496	.537

* This picture, constructed according to classical standards, remained constant throughout the series.

TABLE 3

AVERAGE PROPORTION OF TIMES EACH PICTURE WAS CHOSEN IN PAIRED PRESENTATIONS OF VARIATIONS FROM AN ORIGINAL PICTURE: CONDITION III—LENGTH OF NOSE

Group	*Very Short*	*Short*	*Original**	*Long*	*Very Long*
College ($N = 96$, Mean CA = 21.8) ...	.367	.608	.600	.556	.373
12th Grade ($N = 48$, Mean CA = 17.7)	.388	.599	.602	.524	.396
8th Grade ($N = 48$, Mean CA = 13.5) .	.396	.573	.575	.552	.405
4th Grade ($N = 48$, Mean CA = 9.7) ..	.458	.512	.562	.540	.409
2nd Grade ($N = 48$, Mean CA = 7.4) ..	.454	.567	.537	.496	.446

* This picture, constructed according to classical standards, remained constant throughout the series.

a mean proportion of preferences for that picture. In Tables 1 through 4, preferences are shown in terms of these average proportions of preference for each of the five age groups.

It can be seen that in each of the four conditions there is a regular increase with age in the proportion of those who chose the standard figure. This progression is graphically shown in Figure 2. (Each picture would have an assumed average proportion of .500 by chance alone.)

Considering the adult preferences, it can be shown that there is some indication of preference for the thin lips to be preferred to the thick ones, the wide mouths to the narrow ones, greater widths between eyes to narrower ones and shorter noses to longer ones.

TABLE 4

AVERAGE PROPORTION OF TIMES EACH PICTURE WAS CHOSEN IN PAIRED PRESENTATIONS OF VARIATIONS FROM AN ORIGINAL PICTURE: CONDITION IV—DISTANCE BETWEEN EYES

Group	*Very Small*	*Small*	*Original**	*Great*	*Very Great*
College ($N = 96$, Mean CA = 21.8) ...	.177	.516	.713	.683	.431
12th Grade ($N = 48$, Mean CA = 17.7)	.238	.512	.692	.658	.402
8th Grade ($N = 48$, Mean CA = 13.5) .	.300	.502	.581	.625	.483
4th Grade ($N = 48$, Mean CA = 9.7) ..	.375	.458	.581	.583	.458
2nd Grade ($N = 48$, Mean CA = 7.4) ..	.393	.531	.521	.554	.479

* This picture, constructed according to classical standards, remained constant throughout the series.

At the second grade level there seemed little difference in the stimulus value of the four experimental conditions, and the average proportions of times the standard picture was chosen were highly similar in each case.

By college years, however, there was a considerable difference in the proportions of times the standard picture was chosen for each of the four conditions.

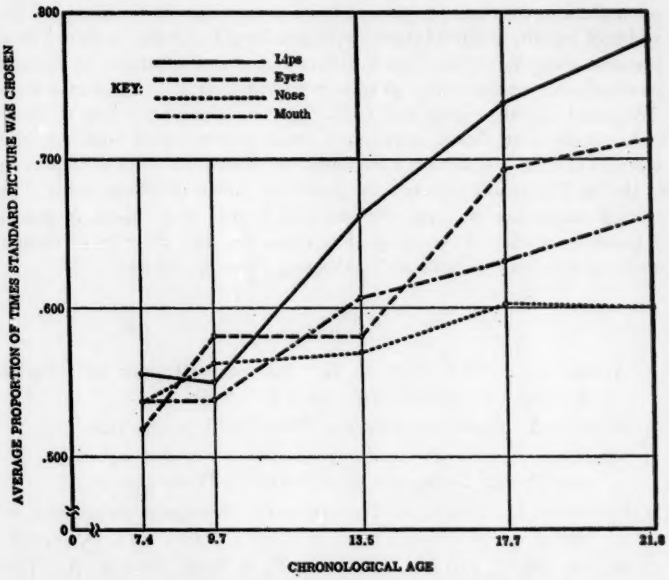

FIGURE 2—Percentage of Choice by Five Different Developmental Groups for Picture Constructed after Classical Proportions as Proposed by daVinci, in Each of Four Variations of Facial Proportion.

Thompson (7) has stated that preferences for rectangles of the golden section, developing gradually with increasing age, probably reflects the effect of non-verbal transmission of culture. Preferences for facial proportions may be somewhat more verbalized. Certain stereotyped expressions of character and personality show preferences for certain types of facial proportions in our cultural pattern: "A large nose means honesty"; "A wide mouth means friendliness"; "Wide-set eyes mean keenness"; Thick lips mean sensuality." Transmission of such stereotypes might conceivably influence attitudes toward facial proportions. It is interesting to see, despite such verbal stimulations, that the curve of growth in this study does not differ

greatly from results obtained by Thompson (7) who found that the curve of growth of aesthetic preferences for rectangles was almost a linear function, not unlike the curves seen in Figure 2.

Summary

This study attempted to show the effects of increasing chronological age on aesthetic preferences for various facial proportions. In thickness of lips, width of mouth, distance between eyes and length of nose, 40 paired comparisons, using variations from a picture constructed according to classical standards, were presented to 96 college students and 48 subjects each from the second, fourth, eighth and twelfth grades. The proportions of times each picture was chosen over every other picture were obtained, and averages of these proportions were found, expressing an average proportion of choice. The results for each age group are shown in tabular form. The average proportion of times the standard picture was chosen is shown graphically for each of the age-grade groups. The data show an increasing similarity to adult standards with increasing chronological age.

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CHILDREN'S CONCEPTIONS OF BODY SIZE [1]

ALLAN KATCHER
University of Washington

and MAX M. LEVIN
National Institute of Mental Health

The body image has been postulated to be of considerable significance in the development of ego and self-functions. In a variety of personality theories the perceptual differentiation of the body surface from the rest of the environment is assumed to be the first stage in the formation of ego processes (9, 10). Thus, Freud conceives the ego as "first and foremost a body-ego" (1). In psychoanalytic theory too, the differential personality development of boys and girls is attributed, in part, to their reactions to anatomical differences, as indicated by fantasies about the origins of bodily characteristics. Conceivably these reactions and fantasies could result in body images which are different for boys and girls.

While such hypotheses are not yet supported by a body of significant empirical data, there are, in addition to clinical observations, a number of logical suppositions which might be mentioned. Much of the social learning, or at least training, during early childhood deals with the management and control of bodily functions and the acquisition of culturally-based attitudes toward the body and bodily parts, e.g., motor skills, toilet training, sex play, etc. (3, 5). Accordingly, parent-child and peer group relations often become established within a matrix of bodily processes and attitudes about them. Body size and the child's image of his size, relative to that of others, may be of particular significance in early social interactions. Theorists have attributed some of the child's feelings of dependency and helplessness to his small size relative to that of adults and objects in his environment (9). Furthermore, the roles and statuses ascribed to the child by parents, siblings, and playmates may vary with his size and their images of it. Similarly, the roles and statuses assumed by the child may vary with his size, or his image of it, relative to that of other persons and objects in his environment.

In this connection it is interesting to note that one of the earliest concepts the child learns to verbalize is that of size. Hicks and Stewart (6), Thrum (12), and Terman and Merrill (11) report that the ability to discriminate large differences in size appears to be well established by the third year. In addition, much of the child's early verbal training provides

[1] An abridged report of this research was presented at the 1954 Western Psychological Association Meetings in Long Beach, California.

CHILD DEVELOPMENT, Vol. 26, No. 2 (June, 1955)

repetitive references to size distinctions. The child also receives numerous reinforcing examples of the role of size in determining status and value judgments in our culture. One has only to examine children's storybooks, records, and movies to be impressed with the obvious force of this kind of cultural emphasis in our society. Actually its frequent use in these media reflects interesting psychological assumptions: (*a*) that the child associates self and others with variations in size, and (*b*) that the child likes to discover small-sized objects and people in books and records because he can more readily empathize with the experiences attributed to them. Some of these considerations led to the present study of children's concepts of body-size. In this paper we shall report the development of a technique for the study of body-size concepts and some preliminary findings from research on young children.

Method

As in other areas of research with young children the problem of method or technique posed certain difficulties. Accurate studies of the young child's concepts, especially when measurement techniques are to be employed, cannot be limited to interviewing procedures without considerable distortion resulting from the obvious language limitations of the child. Furthermore, such projective techniques as the Draw-A-Person or House-Tree-Person, presumed to be appropriate for the study of the body image of adults, are of limited value with the young child. We sought, therefore, to develop a more objective technique which would permit variations in performance but require a specific and relatively simple response. Materials which Levin and Gunvald (4, 8) used in a study of the body images of prepubescent girls seemed well-suited for this purpose. In that study subjects were asked to construct body-type models of themselves and others utilizing schematic bodily parts. The task required subjects to select the bodily parts they deemed appropriate from among the various sizes presented and assemble them to form a manikin-like figure. For the age range studied the method proved to have considerable reliability and there was evidence which pointed to validity as well. The use of the manikin construction technique, however, did not appear feasible in view of other research findings concerning the study of young children's concepts (7). Instead, the subjects were individually presented with triads of schematic body parts depicting heads, torsos, arms, and legs. Each triad consisted of three sizes of each part. These parts were selected from the cutouts of nine drawings of schematic body types, varying in height and weight, which were used in the earlier study. Table 1 lists the dimensions of the parts used in the study.

For each trial, three different-sized pieces were placed directly in front of the child with equal spaces between them. For example, when presented with the heads, the child was told: "These are three heads. Which head

TABLE 1

SIZE DIMENSIONS OF SCHEMATIC BODY PARTS

Body Part	*Large* (inches)	*Medium* (inches)	*Small* (inches)
Head:			
Length	2¼	1¾	1⅜
Width	2	1½	1
Torso:			
Length	7¼	5 5/16	3⅝
Width	4⅛	3 1/16	2 1/16
Arms:			
Length	6	4½	3 1/16
Legs:			
Length	6½	5	3¼

looks like Mother's head?" After he responded, the pieces were moved so that the piece on the extreme right then appeared on the extreme left, and the other pieces were then moved one space to the right. The subject was then asked to indicate the piece which resembled "Daddy's head." At a later presentation, he had to identify his own head followed by the one of the opposite sex. The *S*s were not given any specific indications as to the age of the opposite sex in order to permit them to utilize freely whatever generalized size concepts they had of the opposite sex. Thus each child had to make a total of 16 choices, one for each piece for each referent person. The original placement order was randomly determined for each part but a single sequence of orders was used with all *S*s. The *S*s were randomly assigned to two groups, so that half of them received questions in an order which was the reverse of that in the other group. We did not find that the order in which the questions were asked influenced the subject's choices. Testing was conducted in a familiar room which was located away from the general activity of the child's group. Time was spent informally with the children to let them become familiar with the experimenters prior to the testing sessions.

SUBJECTS

The 69 *S*s were obtained from two nursery schools: one, a University school drawing heavily upon children whose parents were a variety of middle-class professionals; the other, consisting wholly of children whose parents were either University staff members or students at the University.

While there were some socio-economic differences between the two groups, it may be presumed that, in general, attitudes toward child-rearing were similar, in view of the fairly common educational backgrounds and aspirations of these groups. The ages of the children in years and months ranged from 2-9 to 5-4.

Results

For purposes of analysis the groups have been classified by age and sex. The "Younger Boys" includes 19 boys ranging from 2-9 to 3-10; "Younger Girls," 16 girls from 2-11 to 3-11; "Older Boys," 16 from 4-0 to 4-11; "Older Girls," 18 girls from 4-0 to 5-4.

In several comparisons composite scores have been used. They were determined by weighting each choice according to the size selected (3 for large, 2 for medium, 1 for small). Total scores for each referent person were obtained by adding the weighted scores for each chosen body part. The range of scores for any one category can thus vary from a minimum of 4 to a maximum of 12; total scores range from a minimum of 16 to a maximum of 48.

Reliability

Test-retest scores were obtained for 44 *Ss* (23 boys and 21 girls) within a period varying from two weeks to two months. For total size scores the Pearsonian test-retest correlation was .71. Of the four categories, size concepts of self were most reliable: $r = .84$; next for opposite-sex mates, .72; much less for the father, .41; and quite unreliable for mother, .19. If these correlations can be viewed as an index of conviction or certainty about these concepts then it would appear that these children are more certain

Table 2

COMPARISONS OF SIZE CHOICES IN TEST-RETEST SITUATIONS

	Self		Opposite		Mother		Father	
	Mean	*S.D.*	*Mean*	*S.D.*	*Mean*	*S.D.*	*Mean*	*S.D.*
Boys ($N=23$):								
Test	6.96	2.65	7.87	1.40	8.26	1.12	10.74	1.29
Retest ...	6.83	2.55	7.61	1.57	8.39	1.32	10.87	1.60
Girls ($N=21$):								
Test	6.71	1.88	9.52	2.27	8.33	1.10	10.76	1.63
Retest ...	6.10	1.87	9.59	2.22	8.43	1.46	10.81	2.32
Total ($N=44$):								
Test	6.84	2.32	8.66	2.03	8.30	1.11	10.75	1.46
Retest ...	6.48	2.27	8.55	2.25	8.41	1.38	10.84	1.98

about their own body sizes and those of their opposite-sex mates than those of their parents. However, large fluctuations were characteristic of only a small number of the children, and it should be pointed out that some children were exceptionally consistent. For example, as far as concepts of the size of mother's bodily parts are concerned, 18 of the 44 *Ss* chose identical pieces both times. While there were considerable fluctuations for parental concepts, they did not change the average trends for the categories, as Table 2 reveals.

The fluctuations apparently canceled one another, leaving means and standard deviations relatively constant, thus confirming the stability of group trends which we shall report in a later section. The obtained differences in consistency are rather difficult to interpret in the absence of additional data and we must confess that we do not have a satisfactory explanation to offer. Perhaps, parent-child relationships as reflected in body-size judgments may vary more markedly for some children than experiences with bodily growth or body evaluations. Since during the pre-school years intimate and dependent relationships are primarily a function of contact with the mother rather than the father, size concepts of mother may be subject to more change than those of the father because of possible transient fluctuations in the relationship.

Size Concepts of Parents, Opposite Sex, and Self

Table 3 presents the means and standard deviations of the various subgroups for the size concepts of the four body parts. As a group, the children

TABLE 3

COMPARISONS OF SIZE CHOICES FOR VARIOUS SUB-GROUPS

		Self		Opposite		Mother		Father	
N	*Group*	*Mean*	*S.D.*	*Mean*	*S.D.*	*Mean*	*S.D.*	*Mean*	*S.D.*
18	Older Girls	5.94*	1.75	10.17†‡§	2.00	8.44	.94	11.33¶‖	1.00
16	Younger Girls	8.19*	2.36	7.63†	2.09	8.43	1.58	10.38¶	1.50
16	Older Boys	7.00	2.21	7.94‡	1.03	8.94	1.35	10.88	1.18
19	Younger Boys	6.95	2.48	8.00§	1.41	8.53	1.64	10.21‖	1.60
	Total	6.99	2.35	8.46	1.97	8.58	1.42	10.70	1.42

* For Self, Older vs. Younger Girls, $t = 3.03$, $p < .01$.

† For Opposite, Older vs. Younger Girls, $t = 3.39$, $p < .01$.

‡ For Opposite, Older Girls vs. Older Boys, $t = 4.03$, $p < .01$.

§ For Opposite, Older Girls vs. Younger Boys, $t = 3.69$, $p < .01$.

¶ For Father, Older vs. Younger Girls, $t = 2.08$, $p < .05$.

‖ For Father, Older Girls vs. Younger Boys, $t = 2.50$, $p < .02$.

Note.—Two-tailed t tests were made for all comparisons. Only those for which p was .05 or less are reported here.

perceived realistically the body sizes of parents and themselves. Thus, as in the Goldilocks story, father was perceived as the largest, mother as the next largest, and the subjects themselves as the smallest.

The opposite sex is seen as almost as large, on the average, as the mother. As shall be discussed below, this result is largely a consequence of the judgments of the Older Girls. It might have been anticipated that, as is so often observed in children's drawings, mothers would, in general, loom larger than other persons. Our findings, however, indicate that our subjects do perceive the size differences between fathers and mothers quite realistically.

Clearly the most striking findings are the differences in the judgments of the Older Girls when compared with the other groups. In the size judgments of self they perceive themselves as the smallest although the differences are statistically significant only when compared with the Younger Girls. Significant differences are also to be found in their size judgments of the opposite sex and fathers. For the opposite sex they differ significantly from all the other groups; in the case of fathers, they differ significantly from the Younger Girls and Younger Boys only.

The judgments of the Older Girls merit some discussion. Since average sex differences in height are rather small at the ages of our subjects, we cannot account for this trend in terms of actual physical differences. Further, the differences do not exist in the case of Younger-Older Boys. Perhaps Freud's hypotheses about children's reactions to the discovery of anatomical sex differences may be relevant (2). In his discussion of the castration-complex Freud asserts that little girls usually feel inferior to boys when they first become aware of the anatomical differences, and he accounts for a number of sex differences in behavior as a consequence of this feeling. If the age period of our older group corresponds to the time when girls are most sensitive to such bodily differences, then their selection may indeed dramatize these hypothesized feelings of inferiority.

An alternate hypothesis of a social learning variety might be considered as well. It could be argued that sex-role learning proceeds at different rates for boys and girls. Girls may be trained earlier, and with greater emphasis, to conform to the norms in our culture. In addition, the girl is closely identified with mother, who serves as a model for such a sex-role. The boy, on the other hand, may be subject to less sex-role training. Furthermore, in middle-class families, he frequently has a closer relationship with his mother than with his father, who would be expected to serve as the appropriate adult model for sex-role training. Thus these role-training factors would suggest that different gradients for sex-role learning may occur, resulting in clearer and earlier sex-role differentiation in the case of the girl than of the boy. Accordingly, the four to five year old girl prematurely perceives herself as smaller than the opposite sex. The boy, however, does not make much of sex-role differentiation at these early ages.

The present results clearly cannot provide a basis for selecting between the classical Freudian hypothesis and the social learning one. This is not to imply that these two formulations need to be viewed as mutually exclusive. It may well be that both are operative, and under certain conditions one set of intervening variables may be more crucial than another. If the bodily perceptions of the self and the opposite sex could be related to independent measures of castration feelings, on the one hand, and sex-role learning on the other, some light might be thrown on this issue.

Sizes of Body Parts

When referents are ignored it appears that none of the parts receives significantly larger choices than any other. There was an insignificant but consistent tendency for girls to make larger choices than the boys did (with but one exception—Younger Girls perceived legs as smaller than Younger Boys). In view of the observation that young children frequently exaggerate head and arm sizes in their drawings we had anticipated similar trends in our data. In fact, in Levin and Gunvald's study of the body image, the prepubescent girls did emphasize the head to some extent. However, the discrepancy between the results obtained from drawings and our technique may well be a function of the type of task. Stylized aspects of drawings, lack of motor skill, and inability to link concept and performance may yield somewhat distorted impressions of children's concepts if inferences from drawings alone are made for this purpose. Our task makes less demands on these abilities, and, therefore, limits the distortion effect.

Discussion

The present study indicates that this simple and objective technique is useful in the study of body-size concepts of young children. Its applicability to older children has already been indicated in the study of Levin and Gunvald (8). Thus, it would appear to be appropriate for longitudinal studies of body-size concepts. Insofar as such concepts are significant aspects of the body image, or are otherwise related to variables in personality development, it should be useful in a variety of studies. The present findings suggest that certain psychoanalytical hypotheses may be studied with this technique.

Of greatest promise, however, would appear to be studies of ego and self development as such functions may be reflected in images of body and organ sizes of self and others. Additionally, it would be interesting to relate such self concepts to various personality characteristics such as levels of anxiety, dependency, and aggressivity. The individual differences we have observed in our results suggest that personality factors may well be related. Further possible studies relating bodily-size concepts to varying family patterns, particularly to varying parent-child relationships and sibling statuses may be equally interesting.

Summary

Sixty-nine children, ranging in ages from 2-9 to 5-4, were presented with several triads of schematic body parts representing heads, torsos, arms, and legs to study the body-size concepts of self and others. Each triad consisted of three sizes of one body part, and the children had to indicate the sizes they associated with their mothers, fathers, selves, and children of the opposite sex. In general, children perceived fathers as larger than mothers, and the opposite sex as larger than themselves. The Older Girls revealed smaller self and larger opposite-sex choices than did any other group. Suggestions were made concerning the use of the technique in future research. It may be appropriate for the testing of some genetic hypotheses of psychoanalytic theory. The relationships between personality characteristics and body-size concepts need to be studied. Larger samples and wider age ranges are needed to verify developmental findings.

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A METHOD FOR MEASURING DEVELOPMENTAL TASKS: SCALES FOR SELECTED TASKS AT THE BEGINNING OF ADOLESCENCE [1]

RUTH J. DALES
Florida State University

INTRODUCTION

The study undertook to relate various authors' conceptual definitions of developmental tasks; to build operational definitions of selected developmental tasks and subtasks, year by year, from 11 through 14 years of age; and to develop a means of measuring status and/or progress in achievement of developmental tasks. In this undertaking four assumptions were basic:

1. Spontaneous statements of problems children face in their everyday affairs offer data in current task involvement.

2. The maturational status of puberty can be defined for boys and for girls at the beginning of adolescence.

3. Scalogram analysis can measure status and/or progress in developmental tasks, since the problem statements reflect attitudes and values.

4. Scales developed on one population are more likely to serve another population the more similar the two populations.

The total population for the study included 1475 children in 12 New York State schools, serving both urban and rural children, which were considered adequately comparable. Original data were obtained from 463 children in five schools from fifth grade through senior high school. The instrument developed from these data in the form of a check list representing three developmental tasks was pretested on 502 children from fifth

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grade through high school in four schools. In the final survey the scales resulting from the pretest were administered to 510 children from sixth grade through ninth grade in three schools.

The concept of "developmental task" has been used by various educators since its introduction by Lawrence Frank and Caroline Zachry in 1935. Havighurst (3) has given a history of its development and use. Those who have defined and explained the developmental task concept convey similarity in definition and in explanation of the growth process. Such consensus is evident in quotations from Prescott, Havighurst, Tryon and Lilienthal, and Erikson. Each author emphasizes the importance of sequence, i.e., success in the tasks of one stage as essential to success in the tasks of later stages.

> A developmental task is a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by society, and difficulty with later tasks. . . . Developmental tasks may arise from physical maturation, from the pressure of cultural processes upon the individual, from the desires, aspirations, and values of the emerging personality, and they arise in most cases from combinations of these factors acting together (3, p. 2).

Developmental tasks, in the writer's judgment, were the best available organization of statements regarding development. Both Havighurst (3) and the co-authors Tryon and Lilienthal (4) have organized developmental tasks into sequences of Infancy, Early Childhood, Middle Childhood, Adolescence, Adulthood. Tryon and Lilienthal (4) have included for each age from infancy to adulthood the tasks which reach peak importance at the particular stage of development. Their organization, therefore, lent itself to expansion by tracing each task from its peak back to earlier stages and forward to later stages. These earlier and later stages represented subtasks at the respective age levels. A child's progress could be traced as he proceeded from one stage to another in the subtasks for a given developmental task. An expansion of the Tryon and Lilienthal outline (4, p. 84) was undertaken by a graduate seminar group in Child Guidance at Cornell University during the year this investigation was undertaken. Subtasks were added only when data available indicated the nature and the placement of a subgroup earlier or later than its "peak" position in the outline by Tryon and Lilienthal.

The present study undertook to discover some of the differences in developmental tasks of children before and after pubescence. Although it was recognized that the total range for pubescence was from 10 through 17 years, for most children it is limited to 11 through 14 years. Since this range approximates junior high school ages, it was the range utilized in this study. A developmental task is a common problem for all young people to solve on their way to maturity. The tool to measure status or

progress in such problem solving must indicate degrees of achievement in each developmental task area.

Procedure

The step-by-step procedure for the study included in sequence (*a*) gathering the spontaneous statements of problems; (*b*) classifying these data under developmental tasks; (*c*) selecting the most frequent tasks and distributing the problems listed under them into subtasks, each representing a definable universe; (*d*) organizing the subtasks into a check list for pretesting; (*e*) administering the check list; (*f*) scaling the returns from the pretest; (*g*) organizing from the pretest scales a final check list consisting of groups of most promising items; (*h*) administering the check list; (*i*) scaling the returns from the final survey; (*j*) analyzing the data after final scaling; and (*k*) interpreting the findings in the light of the assumptions.

Scalogram analysis was devised to measure status and/or progress in attitudes and was therefore usable in measuring status and/or progress in developmental tasks, since the problem statements reflected attitudes and values. The Cornell technique of scalogram analysis was developed by Guttman (2) and his procedures for scaling were followed. Ford (1) developed a machine technique for use with IBM cards which was faster and led to a unique error count. The use of this technique permitted many more trials and the selection of the best scales.

> Scale analysis tests the hypothesis that a group of people can be arranged in an internally meaningful rank order with respect to an area of qualitative data. A rank order of people is meaningful if, from the person's rank order, one knows precisely his responses to each of the questions or acts included in the scale (7, p. 88).

A scale indicates several levels of achievement in a definable area of experience. The content for any scale in this study was defined within the organization of developmental tasks. The problem for the investigator was to find the spontaneous statements which represented varying degrees of each subuniverse. Any scale resulting from responses to a selected group of items had internal validity because of the similarity of problem statements within the subuniverse.

Pretesting is a means of defining a universe for scalability. It selects from an assemblage of items those which constitute a universe or subuniverse. For pretesting, 8 to 10 items are recommended for every subuniverse and about 100 persons as an adequate sample of the population. Therefore, spontaneous statements of everyday problems were obtained from 463 children and classified by developmental tasks and subtasks. The three tasks with highest frequency were selected for study and they included 25 subtasks. Statements under each subtask were reduced to include only those

which described a unique aspect of the particular subtask. Approximately 10 items for each of the 25 subtasks were organized into a check list.

The completed responses to the pretest check lists for 502 children indicated whether or not they had each problem stated and how important they considered each problem they had. (One page of the check list was different for boys and for girls). Answers were coded and punched on IBM cards to facilitate analysis of data. Marginal frequencies for the approximately 10 items in a subtask scale indicated the proportion of the population who answered "Yes, I have the problem." Items were selected for trial scaling if their marginal frequencies were distributed between 80 and 15 per cent and the intervals between adjacent items were approximately 5 per cent. By the Ford technique of machine analysis (1), all promising combinations of six subtask items were scaled, and that scale was finally selected for each subtask for which there was the least error for the scale as a whole and for individual items in it. Such scales were obtained for the group as a whole, except for the three subtasks which were different for boys and girls. These subtask groups of statements were arranged for the final check list in an order to hold the interest of the children and the items within a subtask were in random order.

The final check list consisted of 20 scales for boys and 21 for girls; 510 children, from 11 through 14 years of age, completed it. The same scaling procedures were used as in the pretest. All of the scales from the pretest which were at the late childhood and early adolescence levels, but none of the four from the later adolescence level, scaled for the population in the final survey. The 16 scales for boys and the 17 scales for girls were, for the most part, reduced to three or four items. Of the 33 final scales there were 2 scales with 6 items, 4 with 5 items, 17 with 4 items, and 10 with 3 items.

The data from the final survey were analyzed separately by sex and age groups, year by year (at 11, 12, 13, and 14), and all computations for girls were also done separately for matured and non-matured status. From the school personnel, information was obtained about physical maturation. The maturational criterion for girls, menstruation, was satisfactorily used in all schools, but the criterion for boys, secondary pubic hair, was not. The study of differences in developmental tasks for matured and non-matured individuals was therefore limited to girls.

For each age, sex or maturational group of respondents three measures were computed: (*a*) percentage of frequency (the proportion of that population who had problems such as the items in the scale represented); (*b*) percentage of importance (the proportion of that population who had the two highest scale scores, for whom, by scale theory, such problems had the highest intensity); and (*c*) mean scale score (the measure of the frequency and intensity of such problems for that group).

By comparing frequencies for successive age groups, directional trends were defined as increasing or decreasing if the changes were continuously

in one direction, maintaining or fluctuating if the changes were irregular, the former if within a 10 per cent range. It was anticipated, from developmental task theory, that the successively older children would decrease in their involvement with later childhood tasks and increase in those of early adolescence.

Findings

The results were, in general, as anticipated. The pattern in the late childhood subtasks was in general a gradient decreasing with age and conversely the pattern in the early adolescent subtasks was a gradient increasing with age. There were, however, irregularities in the gradients for the four age groups from 11 to 14 years of age in several of the subtasks. A pattern of interpersonal relationships was seen in all the subtasks. The three developmental tasks, selected for study because of their outstanding frequency among the original population, all involved interpersonal relationships:

II. *Achieving an Appropriate Giving-Receiving Pattern of Affection*
III. *Relating to Changing Social Groups*
V. *Learning One's Psycho-Socio-Biological Sex Role*

For boys and girls, at both age levels, the subtasks with the highest frequency, and with relatively high importance, were in Task III, *Relating to Social Groups,* and they involved both siblings and peers, both family and peer groups. In Task II, *Achieving an Appropriate Giving-Receiving Pattern of Affection,* both sexes responded similarly, with high frequency and importance to subtasks involving friendships with peers, accepting themselves and others as worthy of friendship, and sharing affection with peers. In Task V, *Learning One's Psycho-Socio-Biological Sex Role,* boys and girls responded selectively. Boys emphasized individual friendships and included the subtask involving money management. Girls emphasized group friendships for the most part until in early adolescent tasks they were concerned with learning heterosexual relationships.

Sequences in subtask content emphasized the pattern of friendship. The content was continuous from Late Childhood through Early Adolescence in six subtasks for boys and seven for girls. It was anticipated that, with advancing age groups, there would be a tendency to decrease in frequency and/or importance in the Late Childhood subtasks and a tendency to increase or at least to maintain in the Early Adolescence subtasks. In half or more of these sequences for both sexes the directional trends with advancing age were as anticipated in frequency and/or importance but the particular sequences were different for boys and for girls.

Responses as anticipated appeared in seven sequences for both sexes, in two sequences for boys only and in three sequences for girls only. The detail is charted below:

RESPONSES AS ANTICIPATED, BY AGE GROUPS, TO SEQUENCES

Task	*Sequences*	*Responses as Anticipated*
II	1 for boys and girls	1 for boys and girls
III	3 for boys and girls	2 for girls only 1 for boys and girls (only frequency)
V	2 for boys and girls 1 for girls only	2 for boys only 1 for girls only

SUBTASKS WITH CONTINUING CONTENT FROM LATE CHILDHOOD (LC) THROUGH EARLY ADOLESCENCE (EA)

Task II—Achieving an Appropriate Giving-Receiving Pattern of Affection

LC 1 Forming Friendships with Peers (both sexes)
EA 1b Accepting Others as Worthy of Friendship

Task III—Relating to Changing Social Groups

LC 1 Establishing Peer Groupness and Learning to Belong (girls only)
EA 1 Peer Groupness and Belonging

LC 3 Learning to Consider the Rights and Needs of Others (girls only)
EA 3 Considering the Rights and Needs of Others

LC 4 Learning to Understand and Deal with Siblings (both sexes, but
EA 4 Learning to Understand and Deal with Own Sex only in freq'cy)

Task V—Learning One's Psycho-Socio-Biological Sex Role

LC 1 Beginning to Identify with One's Social Contemporaries of Same Sex (girls only)
EA 1 Strong Identification with One's Own Sex Mates

LC 2 Learning One's Role Among Peers (boys only)
EA 2 Learning One's Role in Heterosexual Relationships

LC 4 Learning to Spend, Save, and Earn Money (boys only)
EA 4 Learning to Manage Money

Another sequence was anticipated in Task III but evidently it was not so interpreted by the children in the final survey. The pretest scales had indicated continuity in content for three age levels:

LC 2 Clarifying the Adult World
EA 2 Learning to Take Over Adult Sanctioned Peer Behavior
LA 2 Accepting an Adult Pattern of Values

The responses in the survey group indicated that for both boys and girls the meaning of the LC subtask was in terms of adult restrictions. The subuniverse as they responded to it may well have been independence from adult restriction in their peer group behavior rather than clarifying the adult and child world. In this case the subtask should be considered

at the Early Adolescent level and probably under one of the tasks not included in this study, Task I, which deals with development of an adequate pattern of dependence-independence.

It is significant that the only sequence in which both sexes responded as anticipated was under the affection task and that all the sequences had some reference to contemporaries and, for the most part, with developing friendships. The nature of the friendship differed somewhat for boys and for girls, with emphasis on individual friendships for boys under Task V and on group friendships for girls under Task III and the first sequence under Task V. Only in the second sequence under Task V does the emphasis shift for girls to heterosexual relationships. Boys responded as expected (and not girls) in only two sequences, the friendship under affection and the money management under sex role.

The comparison of matured and non-matured girls indicated more differences than similarities. Both groups responded as anticipated in the affection sequence (Task II, LC and EA), the only two from their 17 subtasks in which the two groups of girls responded similarly. In Task III both groups had a similar number of measures as anticipated but they varied as to the subtasks. In Tasks II and V the matured girls responded as anticipated in more subtasks than the non-matured at both Late Childhood and Early Adolescence. The matured girls, therefore, more than the non-matured were working toward interpersonal relationships, especially those involving group interaction.

Tables 1, 2, and 3, and the discussion of each show the items which scaled in the final survey for three of the subtasks. Two of these are for boys and one for girls.

Task III, LC 4, for Boys (Table 1)

Items. From the six items in the pretest scale five items were in the final scale. The item that was not used and its frequency was: *How to get my brother or sister to cooperate, they pick on me,* 26.2 per cent. The 26.2 per cent item was close in frequency to the 23.8 per cent item, contributing to greater scale error than the item used. (Girls also had five scalable items, two of them different from the boys' items.)

Age differences. Frequency and importance fluctuated somewhat but tended to decrease as anticipated. The mean scores decreased as anticipated. This subtask was the highest of all subtasks in frequency with a peak at 11 years of 94 per cent. This subtask had the highest frequency for boys. (For girls frequency was maintained, importance decreased. This subtask was the second highest in frequency of all subtasks for girls.) The EA subtask which followed this in continuity of meaning was III, EA 4, *Learning to Understand and Deal with Own Sex,* in which frequency was maintained, importance decreased. (For girls frequency increased, importance fluctuated.)

TABLE 1

TASK III. *RELATING TO CHANGING SOCIAL GROUPS*

Boys: Subscale LC 4—*Learning to Understand and Deal with Siblings*

SCALABLE ITEMS

Item	*Frequency** (per cent)	*Scale Error* (per cent)
Having arguments with brothers or sisters over little things	67.6	14.9
I get blamed for what my brother or sister does	60.2	11.7
A way to keep my brother or sister from spoiling my things	52.0	9.2
How to make my brother or sister behave when my parents aren't around	46.7	12.1
Why I have to take my brother or sister with me whenever I go someplace	23.8	5.3
Error of Entire Scale		10.6

AGE DIFFERENCES

Age	*N*	*Frequency*† (per cent)	*Importance*‡ (per cent)	*Mean Score*§
11 years	67	94.0	40.3	3.0
12 years	53	81.1	43.4	2.9
13 years	67	85.1	26.9	2.4
14 years	52	80.8	17.3	2.0

* Frequency = Percentage of the total boy population who answered "yes" to particular items.

† Frequency = Percentage of the particular age population of boys who answered "yes" to any or all of the scalable items.

‡ Importance = Percentage of the particular age population of boys who answered "yes" on the two top scale items, i.e., they had the highest scale scores.

§ Mean Score = Mean Scale Score for the particular age population of boys. (In a study of the same population a year later, it has been found that the single measure, the mean score, is sufficient to represent, in a scale pattern, both the frequency and the importance of the scale measure.)

Task V, EA 2, for Boys (Table 2)

Items. From the nine items in the pretest scale six items were in the final scale. The three that were not used and their frequencies were: *I have trouble knowing what to talk about on a date,* 39.3 per cent; *The girls send me love notes, I hate them,* 13.9 per cent; *I wish the girls wouldn't call me up on the phone so much,* 9.4 per cent. The 39.3 per cent item was close in frequency to the 39.8 per cent item, contributing to greater scale

error than the item used. The 13.9 per cent and the 9.4 per cent items were too low to attempt scaling. The item *I would like to know if a certain person likes me* had the highest frequency of all items in the check list for boys. (Girls also had six items, four were the same as for boys but not all of the same items were in the same order for both boys and girls.)

Age differences. Frequency and importance both maintained for all age groups. This subtask had the highest frequency and the lowest importance percentages for boys. (Girls increased as expected in frequency and maintained their percentages in importance after 12 years.) The LC subtask which preceded this in continuity of meaning was Task V, LC 2, *Learning One's Role in Peer Relationships*, in which frequency was maintained from 11 through 14 years and importance maintained through 13 years and then decreased. (Girls increased in both frequency and importance contrary to anticipation.)

TABLE 2

TASK V. *LEARNING ONE'S PSYCHO-SOCIO-BIOLOGICAL SEX ROLE*

Boys: Subscale EA 2—*Learning One's Role in Heterosexual Relationships*

SCALABLE ITEMS

Item	*Frequency* (per cent)	*Scale Error* (per cent)
I would like to know if a certain person likes me	72.9	6.4
I would like to ask someone for a date but I don't know how	42.2	10.9
How can I change my personality to be more popular	39.8	8.9
I am friendly with people but not very popular	31.6	9.7
Is it permissable for a boy to kiss a girl goodnight after a few dates	22.1	13.7
I'd like to find a new person to date	14.8	10.7
Error of Entire Scale		10.0

AGE DIFFERENCES

Age	*N*	*Frequency* (per cent)	*Importance* (per cent)	*Mean Score*
11 years	67	79.1	5.9	1.8
12 years	53	81.1	9.4	2.1
13 years	67	85.1	6.0	2.2
14 years	52	76.9	15.4	2.3

Note.—See footnotes to Table 1.

TABLE 3

TASK III. *RELATING TO CHANGING SOCIAL GROUPS*
Girls: Subscale EA 4—*Learning to Understand and Deal with Own Sex*

SCALABLE ITEMS

Item	*Frequency* (per cent)	*Scale Error* (per cent)
I get along fine with someone in some ways but not so well in other ways	69.9	8.5
I wish I knew how to get along with some of my classmates who seem different	55.6	12.3
I don't know what to do when my friends tease me	38.7	9.8
I am jealous of a certain student but I don't know what to do about it	29.7	11.1
I have trouble settling quarrels with my friends	16.5	7.4
Error of Entire Scale		9.8

AGE DIFFERENCES

Age	*N*	*Frequency* (per cent)	*Importance* (per cent)	*Mean Score*
11 years	65	78.5	12.3	2.0
M*	10	80.0	10.0	2.0
NM†	55	78.2	12.7	2.0
12 years	61	80.3	29.5	2.2
M	31	74.2	19.4	1.7
NM	30	86.6	40.0	2.7
13 years	84	82.1	16.7	2.2
M	54	79.6	14.8	2.1
NM	30	86.6	20.0	2.3
14 years	54	94.4	14.8	2.1
M	48	93.7	14.6	2.1
NM	6	100.00	16.7	2.3

Note.—See footnotes to Table 1.

* M = Matured.

† NM = Non-Matured.

Task III, EA 4, for Girls (Table 3)

Items. From the six items in the pretest scale five items were in the final scale. The item that was not used and its frequency was: *I wish I knew how to keep my friends happy,* 31.2 per cent. The 31.2 per cent item was close in frequency to the 29.7 per cent item, contributing to greater

scale error than the item used. (Boys had five scalable items, one item different from the girls' items.)

Age differences. Frequency increased, importance fluctuated for girls in general. For matured and non-matured girls frequency and importance maintained or increased except for the 12-year-old non-matured girls. For girls in general this subtask was one of the three with highest frequency. (Boys maintained in frequency and decreased in importance.) The LC subtask which preceded this in continuity of meaning was III, LC 4, *Learning to Understand and Deal with Siblings,* in which frequency was maintained and importance decreased as anticipated. (For boys frequency and importance decreased.)

Summary

Three developmental tasks for children 11 through 14 years were defined conceptually and operationally and scales were developed which measured the developmental status of over 500 children in three schools. The subtasks for boys and girls were similar but not identical and the problems they represented yielded sex differences in relative frequency and importance, and maturational differences for girls (maturational status for boys had proven unreliable). The three tasks, selected on the basis of frequency of problems stated by the original population, dealt with interpersonal relations, with emphasis on affection, social group, and sex role. In affection subtasks, boys and girls responded similarly, with high frequency and importance. Boys and girls responded selectively in frequency and importance to the subtasks under social group and sex role, boys emphasizing individual friendships and girls emphasizing group relations. Boys more often than girls and matured girls more than non-matured were concerned with money management. Boys responded as anticipated in all of the late childhood measures, and girls in almost all of the early adolescent measures.

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SOME ASPECTS OF THE GENETIC DEVELOPMENT OF RIGHT-LEFT DISCRIMINATION

ROBERT SWANSON and ARTHUR L. BENTON
State University of Iowa

The ability to discriminate between right and left has been a subject of interest to both psychologists and neurologists for more than half a century. For the most part, psychologists have viewed right-left discrimination as an index of general intellectual development. Binet utilized such a task in his original scale and the test was included in various revisions of the Binet Scale developed in other countries such as the 1916 edition of the Stanford-Binet.

The interest of neurologists in right-left discrimination is derived from the observation that some patients with cerebral pathology manifest a striking impairment of this ability (4, 5, 7, 10). In 1924, Gerstmann (3) reported the frequent association of right-left disorientation with three other deficits—finger agnosia, acalculia, and agraphia. The apparently greater than chance concomitance of the four deficits was confirmed by later observers (2, 8, 11, 12) and the constellation of symptoms has come to be known as "Gerstmann's syndrome."

In 1938, Strauss and Werner (13) reported that performance on a test battery covering both right-left discrimination and finger localization ability correlated positively with arithmetic ability in a group of high grade defective boys. The right-left discrimination test in this battery consisted of commands to show right and left parts of the body and the copying of "crossed responses" (i.e., right hand on left eye) made by the examiner. Since no breakdown of scores for the two types of performance was given, it is not possible to determine whether scores on the right-left discrimination test were significantly related to either finger localization or arithmetic ability. While Strauss and Werner interpreted their results as demonstrating an "obvious" relationship between arithmetic ability and the two abilities, analysis of their data indicates that the relationship is not as clear as they appear to assume.

In 1951, Benton, Hutcheon, and Seymour (1) further investigated these behavioral relationships in normal children and in institutionalized defective children who were roughly comparable in respect to mental age. Their results offered no support for the hypothesis that a relationship exists between arithmetic ability and right-left discrimination capacity in either normal or defective children. They found, however, a significant positive correlation between finger-localization ability and right-left discrimination

CHILD DEVELOPMENT, Vol. 26, No. 2 (June, 1955)

with respect to one's own body in the group of defective children. This held true even when the influence of chronological and mental age was partialled out. In the case of the normal children, the relationship was positive but nonsignificant. Another interesting result was the rather striking inferiority in performance on the test of right-left discrimination shown by a substantial proportion of cases in the defective group.

This last finding suggested the possible usefulness of a right-left discrimination test as a psychodiagnostic instrument in the evaluation of children suspected of suffering from cerebral dysfunction. However, an anticipated clinical application of this type presupposes the availability of reliable norms to be utilized as a basis for interpretation of performance. Since such norms do not exist, it was the purpose of this study to gather some of the necessary data and to make them available for both further research and possible clinical application.

TABLE 1

MEAN IQ, MEAN MA AND SEX COMPOSITION OF THE SEVERAL AGE GROUPS

Age Group (years-months)	*Boys N*	*Girls N*	*Total N*	*Mean CA* (months)	*Mean IQ*	*Mean MA* (months)
5-6 to 6-5	20	20	40	70.78	101.05	71.63
6-6 to 7-5	19	22	41	83.66	100.76	84.29
7-6 to 8-5	18	20	38	95.26	101.48	96.89
8-6 to 9-5	20	19	39	107.46	105.03	112.77
Total	77	81	158	Mean	102.06	

PROCEDURE

Subjects

The sample used in the study was composed of 158 Iowa City grade school pupils between the ages of 5 years, 6 months, and 9 years, 5 months. The two schools which were utilized were selected because each was considered to serve a fairly representative cross section of the city's population and neither seemed to include an undue proportion of children of professional families.

In addition, 12 children residing at the State Home for Orphans in Davenport, Iowa, were tested in order to assess the influence of institutionalization on level of performance. These cases are treated separately in the results.

For purposes of analysis the subjects were divided into age groups, as shown in Table 1. IQs and Mental Ages of the subjects were estimated

by administering at the time of testing three verbal subtests (Information, Comprehension, and Vocabulary) of the WISC. From these IQ estimates, only subjects who scored between 85 and 115 were retained for the study, thus forming a broadly defined "average" group with respect to intelligence level. The mean IQ and MA of each group are shown in Table 1.

Test Battery

The right-left discrimination test used in the study is presented below:

RIGHT-LEFT DISCRIMINATION TEST

1. Show me your left hand.
2. Show me your right leg.
3. Show me your left eye.
4. Show me your right ear.
5. Show me your left leg.
6. Show me your right hand.
7. Point to the boy's right leg.
8. Point to the boy's left ear.
9. Point to the boy's right eye.
10. Point to the boy's left hand.
11. Touch your right ear with your left hand.
12. Touch your left foot with your right hand.
13. Cross your left leg over your right knee.
14. Touch your right knee with your left hand and your left elbow with your right hand at the same time.

(*Subject closes his eyes*)

15. Show me your right hand.
16. Show me your left leg.
17. Show me your right eye.
18. Show me your left ear.
19. Touch your left ear with your right hand.
20. Touch your right foot with your left hand.

It will be noted that the test includes 20 items covering five aspects of right-left orientation, as follows:

1. Six commands for identifying body parts *with the eyes open.*
2. Four commands for identifying body parts on a front view picture of a boy.
3. Four "crossed commands" *with the eyes open* (e.g., "Touch your right ear with your left hand").
4. Four commands for identifying body parts *with the eyes closed.*
5. Two "crossed commands" *with the eyes closed.*

Scoring

In assessing the correctness of performance on the right-left discrimination test, the performances of the children were scored in two ways, as follows:

1. *"Verbal Symbol" score,* which was equal to the number of correct responses which were made.
2. *"Discrimination" score,* which was determined by the number of consistent discriminations disregarding the correctness of the responses with respect to the verbal symbols "right" and "left," i.e., if the child consistently shows the left body part when asked to show the right, and vice versa, he would make a perfect score.

The latter type of scoring is the one primarily used in this study. However, some of the analyses of the data include both types of scores. In most cases the two scores proved to be the same, but some children displayed discriminative ability with a complete reversal of the symbols, "right" and "left."

In order to show discrimination on the crossed commands with reversed symbols, it was necessary for the child to reverse both aspects of the command. For example, in the case of the five "crossed commands" there are four possible responses: right on left, right on right, left on right, and left on left, only one of which is an instance of reversed symbols. The one double "crossed command" in the test involves 16 possible response combinations, only one of which is correct and only one of which is a complete reversal.

TABLE 2

NUMBER AND PERCENTAGE OF HIGHER "DISCRIMINATION" SCORES

Age Group (years)	*Total N*	*Higher Scores N*	*Higher Scores* (per cent)
6	40	11	27.5
7	41	7	17.1
8	38	5	13.2
9	39	6	15.4
Total	158	29	Mean .. 18.4

Table 2 shows the number and percentage of cases in each age group who made higher "discrimination" scores than "verbal symbol" scores. It will be noted that while there is a trend toward decreasing proportions of higher "discrimination" scores with increasing age, an appreciable proportion of children at the older age levels still show a reversal tendency.

RESULTS

Reliability of IQ Estimates

The IQ scores used in the study were obtained by prorating the three Wechsler subtest scores to the basis of five subtests which comprise the

Verbal Scale and reading from Wechsler's table of IQs the equivalent Verbal Scale IQ. It was possible to estimate the reliability of these IQs by applying Wechsler's values for the subtest reliabilities, the subtest standard deviations and the intercorrelations of the subtests to the general formula for estimating the reliability of the composite given by Kuder and Richardson (6). The reliability coefficient was found to be .83, with a standard error of measurement of 7.9 IQ points.

Reliability of Right-Left Discrimination Test

The reliability of the right-left discrimination test was computed by splitting the scores into two halves composed of the odd and even numbered items respectively and correlating the half scores for the 158 cases. When corrected for full length of the test by the Spearman-Brown formula, the reliability coefficient was found to be .88.

Coefficients of equivalence have been obtained for the test in unpublished studies done in the Iowa laboratory. The equivalent form was constructed by reversing the words "right" and "left" in the 20 commands of the test. In one study, a coefficient of .72 between initial test and retest was secured when the equivalent form was given to 46 normal children about 20 minutes after the original form, the interval being filled by administration of a memory-for-designs test. In another study, a correlation coefficient of .67 was obtained on a sample of 25 institutionalized normal and defective children, using the equivalent form for retest and a test-retest interval of about 10 weeks.

TABLE 3

SEX DIFFERENCES IN TOTAL SCORE

	Boys		Girls				
Age Level	*Mean*	*SD*	*Mean*	*SD*	*df*	*t*	*P*
6	13.35	2.92	12.80	3.26	38	.548	n.s.
7	16.26	3.29	16.23	2.26	39	.336	n.s.
8	17.00	1.89	17.55	2.06	36	.830	n.s.
9	18.15	1.98	18.47	1.71	37	.525	n.s.

Sex Comparisons

Table 3 shows the results of the statistical comparisons of the scores of the boys and of the girls on the test of right-left discrimination for each age level. Since the numbers of cases were not proportional from age level to age level, the *t* test for independent samples was used at each age level instead of an analysis of variance. The results afforded no evidence for

rejecting the hypothesis that it was possible to consider both sexes as reflecting the same population of scores. The two sets of data were therefore combined in the analysis of results.

Chronological Age and Test Scores

Table 4 presents the means and standard deviations of the test scores for the several age levels, utilizing both methods of scoring. Both total test scores and three subtest scores ("own body, eyes open"; "own body, eyes closed"; "picture") are given.

TABLE 4

MEAN SCORES FOR TOTAL TEST AND SUBTESTS

Age Level	Total Score		Own Body Eyes Open		Own Body Eyes Closed		Picture	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
			"DISCRIMINATION" SCORES					
6	13.08	3.09	7.15	1.67	3.85	1.67	2.08	1.41
7	16.24	2.81	8.68	1.54	5.32	1.21	2.24	1.73
8	17.29	1.99	8.97	1.02	5.55	.81	2.76	1.60
9	18.31	1.82	9.36	.85	5.72	.80	3.23	1.39
			"VERBAL SYMBOL" SCORES					
6	11.98	4.27	6.15	2.88	3.65	1.81	2.18	1.41
7	14.54	5.18	7.27	3.37	4.54	2.11	2.73	1.58
8	15.69	5.05	8.05	2.83	5.03	1.73	2.69	1.67
9	16.67	5.28	8.23	3.05	4.85	2.15	3.59	.30

It will be noted that, utilizing the "discrimination" scoring method, there is a consistent growth in discriminative capacity with increasing age level for each category of performance. The same state of affairs holds when the "verbal symbol" scoring method is employed, except that two minor reversals in score between adjacent age levels occur.

Since the aim of the test is to provide a measure of somato-spatial discrimination rather than of the ability to utilize the verbal symbols, "right" and "left," the "discrimination" scores are considered to be a superior index, as compared with the "verbal symbol" scores. As was shown in Table 2, the latter ability is evidently acquired quite late by some children. Thus there were six children in the nine-year-old group who showed higher "discrimination" scores. The mean "discrimination" scores of these children was 15.3, which was below the mean for their age group but still indicative of considerable consistency in discrimination. Conversely, their mean

"verbal symbol" score of 4.7 was far below chance expectations. Moreover, the smaller variances for the "discrimination" scores, as shown in Table 4, suggests that a more homogeneous ability is measured when this scoring method is employed.

Estimates of the relative difficulty of the several categories of discrimination (e.g., "own body, eyes open"; "own body, eyes closed") are presented in Table 5 which gives the proportion of successes in each of the subtests for the four age levels. It is evident that the "picture" subtest is more difficult than either of the "own body" subtests. It will also be noted that deprivation of vision, as reflected in the "own body, eyes closed" subtest, does not significantly augment the difficulty of the task of discriminating between the left and right sides of one's own body.

TABLE 5

PERCENTAGE OF CORRECT RESPONSES AT EACH AGE LEVEL
("Discrimination" Scoring Method)

Age Level	*Total*	*Own Body Eyes Open*	*Own Body Eyes Closed*	*Picture*
6	65.4%	71.5%	64.2%	52.0%
7	81.2	86.8	88.7	56.0
8	86.5	89.7	92.5	69.0
9	91.6	93.6	95.3	80.8

The coefficient of correlation between chronological age and total score was found to be .61 and that between mental age and total score to be .57. Since the correlation between chronological and mental age was extremely high ($r = .91$) in this selected group, it was not possible to assess the relative effects of each factor alone on total score.

Subtest Correlations

When scores on the three categories of task were correlated, it was found that there was a significant positive correlation ($r = .51$) between the two "own body" tasks (eyes open and eyes closed). In contrast the "picture" subtest performances did not correlate significantly with either of the "own body" tasks ($r = -.01; -.02$). Thus the task of identifying body parts of the picture proved to be not only more difficult for the children but also unrelated to their performances with respect to their own bodies.

Institutionalization and Test Performance

An attempt was made to study the possible relationships between institutionalization and test score, since this variable, which is so often involved

when clinical and normative groups are compared, might be a significant determinant of performance. Because of an unanticipated paucity of subjects, only an incomplete analysis of the influence of the institutionalization factor could be made. A survey at the State Home for Orphans in Davenport disclosed only 12 children within the age range of 5 years, 6 months, to 9 years, 5 months, and with IQs ranging from 85 to 115 residing there at the time the survey was made.

TABLE 6

"DISCRIMINATION" SCORES OF INSTITUTIONALIZED CHILDREN

Age Level	*N*	*IQ*	*Score*	*Mean*	*Main Group Mean*
6	4	98	15		
		89	15		
		85	11		
		102	16	14.25	13.08
7	2	91	14		
		99	13	13.50	16.24
8	2	100	18		
		97	14	16.00	17.29
9	4	85	14		
		106	19		
		95	19		
		106	16	17.00	18.31
Mean		96.08			

The mean age of these 12 children was 86.58 months (*SD*, 15.26). These values may be compared with those of the total normative group of 158 children, whose mean age was 89.06 months (*SD*, 14.06). The test scores and IQs of the institutionalized children and test scores of the main normative group are presented in Table 6. Comparison with Table 1 shows that the IQs of the institutionalized children tend to be somewhat lower than those of the normative group.

Since the mean ages of the two groups were so similar, a *t* test between the overall means of "discrimination" scores to determine whether there was a significant difference in level of test performance was deemed justifiable. The normative overall mean test score was 16.20 (*SD*, 3.19) and the institutionalized overall mean test score was 15.33 (*SD*, 2.34) which yielded a nonsignificant *t* value of .916 with 168 degrees of freedom. Thus, although

the institutionalized children had a lower mean IQ than the normative group, their mean "discrimination" score was not significantly lower than the mean "discrimination" score of the normal cases.

Normative Application

In view of an anticipated application of the normative scores obtained in this study, a tentative series of rough cutting scores corresponding to the lowest score made by any subject in a particular age group was established. The cutting scores represent an estimate of the fifth percentile score of normal children at the four age levels. Since they are based completely on the performances of presumably healthy subjects, these "critical scores" do not necessarily carry the implication that performances below the respective cutting scores are indicative of pathology. The validation of such an inference awaits further study. However, it may be mentioned that investigations in progress in the Iowa laboratory indicate that these cutting scores do possess significance for the prediction of cerebral pathology in children.

Table 7 lists the number and percentage of subjects at each age level who scored at these low values.

Table 7

NUMBER AND PERCENTAGE OF SUBJECTS AT CUTTING SCORES AT EACH AGE LEVEL

Age Level	*Lowest Score*	*N*	*Per Cent*
6	8	2	5.0
7	9	2	4.9
8	13	2	5.3
9	14	2	5.1

Discussion

The findings of this normative study of right-left discrimination in children has shown that this general ability has a progressive development through the ages of six through nine years. The somewhat above chance performance of the six-year-old children suggests that growth in this type of discriminative skill begins at about the age of five years. There is then a progressive development through the age of nine years. Rate of growth is fairly rapid between the sixth and seventh years, but decreases between the seventh and ninth years. Incomplete data dealing with the performances of 10-year-old children, which are not treated in this study, show a further

decrease in rate of development between the ninth and tenth year. Thus the growth curve can be fairly accurately described as being negatively accelerated.

It is also of some interest that the performance level of these 10-year-old children is somewhat below the average adult performance as indicated by studies now in progress. It thus appears that full maturation of these discriminative abilities does not occur until late childhood, perhaps at about the age of 12 years.

Analysis of performances on the three types of tasks—discrimination of parts of one's own body with the aid of vision, discrimination of parts of one's own body without the aid of vision, and identification of body parts of a representation—indicates little difference in difficulty level between the two "own body" tasks. The differences in this respect at all age levels are small and insignificant. On the other hand, discrimination of body parts of a representation of a person is consistently more difficult at all age levels. This finding is in accord with an old observation of Piaget (9) that most children can pass a simple test of right-left discrimination at age six, but are unable to achieve the same performance level with respect to another person until after the age of eight years. Piaget regarded this phenomenon as a reflection of a normal process in the growth of thought, in which the child's thinking becomes gradually less egocentric.

Further, while performances on the two "own body" tasks are positively correlated to a moderate degree, there is no relationship between either task and the discrimination directed toward a representation of a person. This suggests that the test battery as presently constituted is heterogeneous in character and that a revised battery might well be restricted to "own body" items.

Certain limitations of this normative study should be mentioned:

1. The study has been restricted to a consideration of the performances of children within the age range 5 years, 6 months, to 9 years, 5 months. Both the findings of this study and incomplete data on 10-year-old children indicate that data should be secured on both younger and older children to form a complete picture of the whole developmental process of this ability.

2. While it may be assumed that fairly stable estimates of "own body" discrimination have been secured for the age range under consideration, it is evident that the estimates of the unrelated "other person in space" discrimination are based on too few items to be considered reliable. The latter ability warrants a separate normative investigation in its own right.

3. Although the normative population was deliberately restricted to subjects of broadly average intelligence, there was a tendency for the samples at each age level to be slightly above average in intelligence, the mean IQ for the total group being 102 and the mean IQs of the separate age groups ranging from 101 to 105. This may have introduced a slight bias

in the direction of above average performance. However, it is doubtful that this bias, if it exists, is of practical significance.

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THE RELATIONSHIP OF SOCIO-ECONOMIC STATUS AND AGGRESSION TO THE COMPETITIVE BEHAVIOR OF PRESCHOOL CHILDREN [1]

JOHN P. McKEE and FLORENCE B. LEADER
University of California, Berkeley

Although competition has interested psychologists and educators for years, only Greenberg (4) and Leuba (7) have provided empirical data for the preschool years. And so far as the writers have been able to ascertain there is no empirical material concerning conditions responsible for the development of competitive behavior patterns. Nor is there adequate empirical information about the relationship of competition to other forms of social behavior during early childhood. Current textbooks, in fact—e.g. (5)—rather avoid this last question and progress from a discussion of competitive behavior through competitive motivation and the use of competitive incentives to sibling rivalry with no clear-cut indication that the last concept is frequently considered germane to the subject of aggression.

The investigation reported below attempts to fill some of these lacunae. First, it seeks to determine the role of socio-economic origin in the development of competition. The hypothesis is that competitive behavior will appear earlier and be more intense among children from lower socio-economic origins. This is suggested by the fact that in Leuba's American middle-class sample there was no competition among two-year-olds and very little among three- and four-year-olds while in Greenberg's underprivileged Viennese sample even some of the two-year-olds competed. Since the procedures, criteria and cultural background of the subjects differed considerably in the two investigations the evidence is only suggestive, but it agrees with the common sense notion that those who are deprived of

[1] The protocols upon which this investigation is based were collected by the junior author under the senior author's direction as part of a thesis for the Master's Degree in Child Development at the University of California. The ratings used in the present report were made by the senior author and Miss Eva-Maria Peters whose assistance is gratefully acknowledged.

status are likely to seek it more vigorously than those who are not so deprived. Another plausible possibility is that youngsters from lower socio-economic levels have learned the desirability of successful competition through having had to compete for a limited supply of material benefits. In short, the hypothesis is consonant with both reason and such facts as are available.

A second purpose of this experiment is to determine the relationship between competition and aggression. The lack of clarity mentioned above suggests that they may have much in common, or even that competition is simply a means of aggressing. In this case there ought to be a substantial positive correlation between measures of the two. On the other hand, it is possible that behavior which has no other purpose than simply to excel another (competition) may develop almost independently of behavior for which the aim is injury to another (aggression). Aside from these theoretical niceties there remains the question of whether the two categories of behavior can each be measured reliably enough to justify either point of view.

Beside the two preceding objectives this study has a number of exploratory aims. It makes a tentative examination of age and sex differences in both aggression and competition during the preschool years. And it attempts to extend to this period Davis' (1) finding with older subjects that aggression is more common among lower socio-economic groups.

Subjects

One hundred twelve three- and four-year-old children divided equally as to sex, age, and socio-economic status served as subjects. Thus there were 14 children in each subgroup. Middle-class children were taken from three sources: the nursery school of the Institute of Child Welfare at the University of California, Berkeley; a Parent Co-operative Nursery School in El Cerrito, California; and a Parent Nursery School operated by the Berkeley School System in Berkeley, California. The parents of the Institute children were primarily University faculty or occupied in other professions. The El Cerrito school is financed entirely by the parents; tuition is charged and mothers must be free to participate in the school program. The Parent Nursery School is operated as an adult education class, requires tuition, maternal participation and attendance at a weekly class. Because of these parental characteristics and because of the residential areas involved, the children attending these three schools are considered to be of upper middle socio-economic origin. Children of lower socio-economic origin came from two sources in Berkeley: a Day Care Center and a Day Nursery for needy children. Attendance at the Day Care Center is contingent upon having a low family income (less than $330 per month for two parents and one child), or upon the mother's being employed in essential industry. Both

financial status and the areas in which they live indicate that these subjects have considerably lower socio-economic origins than the upper middle-class sample, though they are not "Lower Class" in Warner's (8) sense.

Procedure

To familiarize the subjects with the equipment each child was first brought into the test room alone for eight minutes. He found a small table with a chair at each end, a pile of small red and yellow toy construction bricks before each place, and two sample constructions in the center of the table. He was asked if he knew how to build with them, and if he did not, the experimenter helped him. The experimenter, who sat across from the child, built a stack of eight red bricks. After two minutes she left, commenting that she needed equipment from the next room. Six minutes later the experimenter returned and took the child back to his play group. After a few days the child was tested again. This time he was paired with another child of the same age, sex and socio-economic origin. Otherwise, the situation remained the same. Each child sat at one end of the table with a pile of blocks before him and two sample constructions in the center. The experimenter again remained for two minutes and then observed from another room for six minutes.

While observing, the experimenter recorded both the overt behavior of the children and their verbalizations. The written protocols were then rated on a four-point scale for both aggression and competition by two independent judges who did not know the age, sex or socio-economic status of the children. Each judge first made 112 ratings of competition, and then went through the protocols a second time to rate aggression.

Competition was defined as behavior of which the intent seemed to be to excel or to communicate the notion of one's own superiority to the partner. Aggression was defined as behavior of which the intent seemed to be to injure the partner.

Since the "intent" of a behavior can only be inferred, a number of denotative criteria were used to increase reliability and objectivity. Any remark about the relative size, beauty, excellence and so forth of the two children's products was considered very carefully in relation to competition, but both raters independently noted that occasionally such remarks seemed no more than statements of fact (e.g., "Yours is bigger") with, so far as could be determined, no overtones of feeling whatsoever. The criteria of aggression were such things as physical violence and derogatory remarks. While physical violence is pretty clear-cut, derogatory remarks not always are. Thus, the comment, "I'm going to make a bigger one than yours" may be purely informative, purely competitive, or may involve aggression as well. There were many instances of this kind and all that can be said is

that the raters weighed the pros and cons and did their best. The final scores assigned to each child are the averages of the two independent ratings of competition and aggression.

Results

Before analyzing the data in terms of the socio-economic factor there are two prior matters which were mentioned above. Can the same protocols be rated reliably for both competition and aggression? Assuming the answer to this question is "yes," then are the two categories of behavior independent enough to justify two analyses? For competition the reliability by the phi coefficient is +.71. For aggression it is +.68. While these coefficients are smaller than might be hoped for, they are high enough to permit analysis of the data. Furthermore, the phi for the relationship between competition and aggression is only +.22 which means that separate analyses are feasible.

Much of the remaining analysis will be made in terms of the number of *pairs* of children who showed competition or aggression. Bear in mind that there are 112 children, or 56 pairs, 28 pairs from each socio-economic level. The ultimate breakdown of pairs gives seven pairs in each subcategory (e.g., lower socio-economic, three-year-old girls).

Competition

Table 1 gives the number of *pairs* of children in the lower and middle socio-economic groups in which neither child, one child, or both children showed any competitive behavior (average rating greater than zero). The chi-square of 8.19 is significant at between the 1 and 2 per cent levels of confidence. Clearly, there is more competition among pairs from the lower social level. Since the behaviors of the members of a pair are not independent of each other, it is a little difficult to speak about individuals, but in passing it should be noted that 36 of 56 lower status children showed some competition while only 18 of the 56 middle status children showed any.

Table 1

NUMBER OF PAIRS IN WHICH 0, 1, OR 2 CHILDREN SHOWED ANY COMPETITION

	0	*1*	*2*
Low status	7	6	15
Middle status	15	8	5

$\chi^2 = 8.19$

$.01 < p < .02$

TABLE 2

NUMBER OF PAIRS IN WHICH AT LEAST ONE CHILD SHOWED SOME COMPETITION: SUBGROUP COMPARISONS

	Low Status	*Middle Status*
3-year-old boys	5	3
3-year-old girls	4	2
4-year-old boys	7	4
4-year-old girls	5	4

This preponderance of competition among the lower status children is found in each of the subgroup comparisons. They are summarized in Table 2. In all four comparisons there are more lower status pairs showing competition than there are middle status pairs. Assuming that a difference in either direction is equally possible gives a probability of only .0625 ($.5^4$) that these results are due to chance. Similar results are obtained by comparing the individual children (as opposed to pairs) in each of the four subcategories. In every instance more lower class children compete.

The means and medians are given in Table 3. The preponderance of zero ratings makes the distributions very skewed. Even so, all four subgroup comparisons yield somewhat higher means for the lower status group. This is not true for the medians, but this reflects only the fact that most medians are zero.

In summary, every method of analysis confirms the hypothesis that competition is more frequent and more vigorous among the children with lower socio-economic origins. More individuals are involved and the average ratings are higher.

In addition to the socio-economic difference, Tables 2 and 3 yield important information about sex and age differences. In Table 2, three sex comparisons favor boys (middle status four-year-olds have the same number

TABLE 3

MEAN AND MEDIAN RATINGS OF COMPETITION

	Low Status		Middle Status	
	Mean	*Median*	*Mean*	*Median*
3-year-old boys	.92	0	.25	0
3-year-old girls	.36	0	.30	0
4-year-old boys	1.24	1.50	.70	0
4-year-old girls	.80	.75	.42	0

TABLE 4

NUMBER OF PAIRS IN WHICH 0, 1, OR 2 CHILDREN SHOWED ANY AGGRESSION

	0	*1*	*2*
Low status	5	5	18
Middle status	12	8	8

$\chi^2 = 7.44$

$.02 < p < .05$

for both sexes) and all four age comparisons favor the older children. For the age differences the probability of obtaining such results by chance is .0625. Table 3 indicates almost the same thing, though of course the skewed distributions make the medians rather less informative than they might be and there is one contradiction in the sex difference between means (middle class three-year-old girls slightly exceed boys). All in all, though, the evidence strongly supports the generalization that competition is positively related to age and more common among boys than girls.

Aggression

The results for aggression are similar in some respects to those for competition. Table 4 indicates more aggression among pairs with low status, and this general finding is confirmed in all but one instance in the subgroup comparisons in Tables 5 and 6, as well as by the fact that 41 individual lower status children showed at least some aggression while only 24 of the middle status children showed any. In brief, the evidence is strong that aggression is more common among children from the lower socio-economic level.

Unlike the results for competition, no clear-cut findings are evidenced with regard to sex and age differences. Jersild and Markey (6) report a

TABLE 5

NUMBER OF PAIRS IN WHICH AT LEAST ONE CHILD SHOWED SOME AGGRESSION: SUBGROUP COMPARISONS

	Low Status	*Middle Status*
3-year-old boys	7	3
3-year-old girls	6	4
4-year-old boys	5	4
4-year-old girls	5	5

similar lack of age trend while Green (3) and Dawe (2) report more complex age trends than this investigation was designed to yield. The failure to find a clear sex difference is puzzling, though the fact that the situation was one which elicited a great deal of verbal behavior may be relevant. Girls' well known verbal superiority may have given them a relative advantage not normally enjoyed in less structured free play situations.

TABLE 6

MEAN AND MEDIAN RATINGS OF AGGRESSION

	Low Status		Middle Status	
	Mean	*Median*	*Mean*	*Median*
3-year-old boys	1.75	1.50	.50	0
3-year-old girls	.64	.50	.40	.25
4-year-old boys	.75	1.00	.36	0
4-year-old girls	.71	1.00	.40	0

DISCUSSION

While this investigation appears to shed some light on the development of competition it raises some new questions also. The first concerns just what feature of differential socio-economic status is responsible for the differences in competitive behavior. Presumably it is not due to more permissive child-rearing practices among the lower socio-economic group: the lower group in this study probably corresponds more closely to Warner's lower middle class than to his lower class. Is it a compensatory device for gaining status? Is it simply less parental supervision which permits children to learn competition by trial and error? Is it actually encouraged by parents from the lower sample and more or less ignored or even discouraged by the upper middle parents? The writers are inclined to favor a combination of the last two possibilities.

A second question concerns the low intercorrelation between competition and aggression. The writers' hunch about this fact is that it is due to the youth of the subjects who have learned to want to excel, but have just begun to learn to become angry when they are unsuccessful in this aim. If this is true, then the correlation between competition and aggression should be higher among somewhat older subjects. An investigation of this possibility will be undertaken shortly.

A last problem has to do with the failure to find more aggression among boys. It was suggested that the predominance of verbal responses may have increased the aggression score for girls. The hypothesis that girls' aggression is heavily weighted with language is not a new hypothesis with the

writers, but good evidence on the matter seems to be lacking. It is a question well worth investigating.

Summary

One hundred twelve three- and four-year-old children equally divided as to age, sex and middle or lower socio-economic status were pretested and then paired in an experimental play situation. The behavior and verbalizations of the children were recorded and the protocols then rated independently by two raters for the degree of competition and the degree of aggression.

Both competition and aggression could be rated with fair reliability and the association between the two kinds of behavior was very low (+.22). In this situation, significantly more competition was found among children from low socio-economic origins than among children from upper middle origins, and this finding was true of all subgroup comparisons. More instances of competition occurred among older children than among younger and among boys than among girls. Aggression was also more common among the lower status children and subgroup comparisons supported this finding almost without exception. Clear-cut sex and age differences in aggression did not appear.

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AN ANALYSIS OF THERAPIST-CHILD INTERACTION IN PLAY THERAPY

CLARK E. MOUSTAKAS and HENRY D. SCHALOCK[1]
The Merrill-Palmer School

The present investigation purposed to examine the nature of the interaction of therapist and child in a play therapy situation, with particular reference to two groups of children, one with serious emotional problems, the other without such problems. The study involved the analysis of one therapist's behavior, and is therefore essentially exploratory.

Several studies (1, 2, 3, 6, 7) have attempted to measure discrete aspects of therapist-child interaction, especially the child's responses to the therapist. In general, however, they have not analyzed the child's influence on the therapist's responses to the child, nor are they based on a measure of the minute-by-minute interaction between therapist and child. This study sought to provide information concerning such interaction in the play therapy situation.

THE MEASURING DEVICE

A system of categories has been devised (6) that permits a comprehensive quantitative measurement of adult-child interaction and provides an objective basis for studying the play therapy situation. A total of 82 adult and 72 child categories are included in the schedule. These categories were constructed on the assumption that adult-child interaction involves reciprocal stimulation: that the child's behavior is potentially as significant in influencing the adult's behavior as the converse. The measuring instrument is therefore focused equally on adult and child interactional behavior.

This concept of interaction makes no inference about the motivation of specific behavioral acts. The categories are interchangeable; that is, the categories for measuring adult and child behavior are essentially the same. In addition, a hostility or anxiety rating accompanies all category entries.

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[1] Clark E. Moustakas, psychologist, was the play therapist for this study; Henry D. Schalock, graduate student at the Merrill-Palmer School in 1953-54, now on the faculty of Oklahoma A. & M. College, was the observer.

A report (6) now in preparation lists, describes, and discusses the categories. The behavior of both child and adult (in this instance, the therapist) is recorded at five-second intervals in terms of the categories and ratings involved.

Reliability of Observations

Reliability was determined by findings and agreement between two independent observers on simultaneous observational records. Reliability, computed on the basis of an item-by-item comparison of these independent simultaneous records, is reported in terms of percentage of agreement. For two observers, recording approximately 90 minutes of therapist-child interaction, it was 96.41 for the behavioral categories, 98.27 for the anxiety-hostility ratings, and 92.44 for a combined score in each five-second interval. Another report (6) gives reliability scores on the individual categories.

Procedures

The subjects, selected from four-year-old children enrolled in the Merrill-Palmer Nursery School, were each rated as having or not having emotional problems of sufficient severity to impair personal and social relations in the nursery school. Three independent ratings of the children were made: one on the basis of home and school longitudinal records, one by the nursery school teacher, a third by a student teacher. No child was included in the study unless there was complete agreement as to the presence or absence of severe emotional problems. Such agreement was reached on 10 of the 16 children aged four. This criterion prevented matching the children on the basis of sex. However, all came from similar socio-economic and educational backgrounds, that is, from middle-class, professional families. Group A (without emotional problems) included three girls and two boys; group B, four boys and one girl.

With the exception of one child in each group who was seen only once because of withdrawal from the school, each subject was seen by the same therapist for two 40-minute play sessions, usually with an interval of three days between the sessions.

Observations were made from a room equipped with a one-way vision mirror and sound amplifiers. The therapist endeavored to avoid obstructing the view of the observers.[2]

Observational data were not discussed between therapist and observer. The observer was not familiar with the subjects or with the ratings of the children. Since approximately a thousand items were recorded during each session, and the sessions were held at three-day intervals for any particular child, it is unlikely that the observer had any preconceived ideas about the expected behavior of either therapist or child.

[2] After reliability had been established, one observer continued the observations.

The Therapist's Role

In accordance with the child-centered orientation (5), the role and purpose of the therapist were to convey to the child attitudes of faith, acceptance, and respect throughout the session. He attempted to achieve these goals by maintaining a listening attitude and sympathetic responsiveness and by creating a warm, permissive relationship. His function was so to structure the relationship as to give the child a clear understanding of his freedom, to encourage him to express himself in his own way, to reflect his feelings and thus show him that he was understood and accepted, and to set limits, helping the child to feel secure, to move safely, and to tie the experience to reality.

Results

The data obtained from observations of therapist and child behavior were arranged in two master tables (not included in this report), and the results were summarized in terms of the information they provide with reference to certain specific questions.

I. *What is the nature of the therapist's behavior as he interacts with the child in a play therapy setting? Are there differences in this behavior when he interacts with* (a) *a child not having emotional problems and* (b) *a child with emotional problems?*

Data relevant to the first part of the question were summarized and analyzed in terms of rank order of frequency. A total of 9,084 observations and an equal number of anxiety-hostility ratings of the therapist's behavior were made, based on five-second periods. The five categories appearing most frequently, and accounting for about 85 per cent of the therapist's interaction with the children, were: Attentive Observation (the therapist observes and listens while the child plays); Recognition of Stimulation (the therapist shows recognition overtly, e.g., by saying, "Um hm," or "I see,"); Giving Information Verbally; Interpretation by Restating Verbalized Feelings; and Seeking Information of an Impersonal Nature (e.g., the therapist asks the child if he noticed the crayon under the chair).

Certain categories seldom used by the therapist were: Restriction with an Explanation, Enthusiastic Cooperation, Reassurance, Directing with a Threat, Noncooperation Accompanied by an Explanation, Seeking Personal Information, Seeking Permission, and Giving Qualified Permission.

Categories not used at all by the therapist included: Seeking Help, Seeking Reassurance, Seeking Reward, Orienting Roles by use of status and power, and most "Restricting" and "Forbidding" categories. The therapist did not employ "Criticism" or "Disciplinary Action" of any kind. Threat of Attack and Rejection by changing the subject, denying the valid-

ity of a statement, or rejecting the child as a person were not used. Other categories that did not appear in the therapist's behavior were: Expressions of Affection, Reward, Compliance, Noncooperation, and two categories of "Interpretation," namely, Interpretation by Associating Current and Past Events, and Interpretation by Giving an Account of Reality or Translation of Symbolic Behavior.

Data relevant to the second part of the question show little difference between the two groups with respect to the five most frequently used categories, totaling about 85 per cent for each group. The category used most often, Attentive Observation, represented 57 per cent of the therapist's interaction with the children of group A (children without emotional problems), 62 per cent with group B, a difference significant at the .05 level. Recognition of Stimulation represented 10 per cent of the interaction with group A, 8 per cent with group B; Giving Information Verbally, approximately 8 per cent with each group; Interpretation by Restatement of Verbalized Feelings, 4 per cent with each group; Seeking Impersonal Information, 4 per cent with group A, 3 per cent with group B.

The difference between the groups in Giving Help—used less than 1 per cent of the time with group A, about 2 per cent with group B—was not statistically significant. Interpretation by Clarification of Verbalized Feelings was used significantly more often with group B (at the .05 level). Straightforward Cooperation appeared approximately 1 per cent of the time with group A, 2 per cent with group B, an insignificant difference.

In summary, most of the differences in the therapist's approach to the two groups were not statistically significant. Differences in frequency, however, show some interesting patterns, which may be summarized as follows:

Giving Help. The therapist gave help to group B, children with emotional problems, more than twice as often as to group A, namely, 85 times as compared with 34 times.

Giving Information by Demonstration. Another indication that group B received more aid than group A appeared in this category: the therapist used it 22 times with group B, only twice with group A.

Forbidding. Though the frequencies for all "Forbidding" categories were small, they showed that the therapist consistently used them more with group B than with group A. Thus he used Forbidding with an Explanation with group B 9 times, compared to 4 times with group A; Forbidding with a Direct Statement was used 8 times with group B, never with group A; Forbidding by Use of Physical Restraint was used 3 times with group B, never with group A.

Directing. Directing by Command was used 16 times with group B, only 6 times with group A. In contrast, Directing by Suggestion was used 30 times with group A, only 11 times with group B.

Discussion

Viewing the therapist's behavior from an all-around approach, we find primary emphasis on *being there,* that is, interacting with the child by observing, listening, and making statements of recognition. Since this behavior occurs so frequently, it must provide an important basis for the therapy experience. The five major categories of the therapist's interaction behavior were responses to clues from the child, and served primarily to help the child further explore his behavioral expressions. The category Seeking Impersonal Information, though seemingly a directive, was actually a means of gaining a clearer understanding of the child and of stimulating the child to further exploration of his behavior.

Expressions of affection and approaches involving support or rewards were strikingly absent from the therapist's behavior. Punishing and criticizing methods were not used at all, nor were interpretation categories that departed from the child's immediate expression. When these factors are considered, along with the relatively small amount of forbidding, structuring, restricting, directing, and anxiety on the therapist's part, it appears that the child was left to operate on his own terms, in a nonjudgmental atmosphere, while the therapist attempted to understand the child on the basis of the child's own expressions.

In an overall sense, the therapist's behavior toward the two groups of children, and with one child as compared with another, was essentially the same, whether or not the children exhibited emotional problems. This observation is supported by the finding of a rank order correlation of .886, when the therapist's behavior with the two groups is compared. The few major differences occurred because the two groups initiated different types of interaction behavior. Thus the therapist attentively observed children of group B significantly more than those of group A, because the children with emotional problems more often sought a considerable amount of contact with the therapist which did not require a response from him. Similarly, they were more involved in their own individual play.

II. *What is the nature of the interaction behavior of children not having emotional problems (group A) and children with emotional problems (group B) in a play therapy setting?*

On the basis of 4,610 observations and an equal number of anxiety-hostility ratings of group A and 4,934 observations and ratings of group B, seven categories are found to appear most frequently in both groups, representing approximately 95 per cent of the interaction behavior. They are: Nonattention, Attentive Observation, Statement of Condition or Action, Seeking Information, Giving Information Verbally, Recognition of Stimulation, and Nonrecognition of Stimulation.

The most frequent category for group B was Nonattention, which appeared 47 per cent of the time, while group A showed this category 33 per cent of the time, a difference significant at the .01 level. Statement of Condition or Action was a basic approach in group A, involving 34 per cent of their total interaction behavior, compared to 23 per cent in group B. This difference is not statistically significant. No other difference between the two groups in the major categories was statistically significant.

Categories not used by either group of children were: Giving Information by Demonstration and Explanation, Giving Reassurance, Seeking Affection, Seeking Reward, Directing by Command Accompanied by Threat, all "Restricting" categories, most "Forbidding" and "Criticism" categories, all "Disciplinary Action" categories (except Punishment by Attacking the Therapist's Objects), Rejection of the Therapist as a Person, Giving Permission, Praise, Affection, Reward, and most "Noncooperation" categories.

Some interesting, though minor, differences in the approach of group A and group B to the therapist are revealed. Thus group A used the following categories of behavior oftener than did group B: Joint Participation in Activity, Seeking Help, Orienting the Role of the Therapist in Play, Directing by Suggestion, Seeking Permission, and Rejection by Changing the Subject and Rejection by Denying the Validity of the Therapist's Statement. Group B used more frequently all categories of "Forbidding" and "Physical Attack" and all categories of "Threat of Attack."

A significant difference (.005 level of confidence) appeared in the hostility ratings of the two groups. In group B (children with emotional problems) there were 418 episodes of the presence of some hostility; in group A, only 23. The children of group B also showed 72 instances of severe hostility; those of group A showed none—a difference significant at the .05 level. A reversed, though not significant trend, appeared in the data on anxiety ratings. Here group A had a total of 32 ratings; group B had only 8.

Discussion

Perhaps the most interesting result was that the children with serious emotional problems were more like than different from the children without such problems in terms of interaction behavior. The scores of the two groups showed a correlation of .694. In general, their behavior patterns were similar.

The differences in behavior between the groups appeared to be related to the problems of the children in group B. These children spent much of their time in noninteractive behavior—in fantasy, play, and other activity that excluded the therapist—or they responded to him in a way that did not encourage interaction. In contrast, the children of group A showed considerable verbal interaction with the therapist, talking about friends, school, home, and other conditions in their lives, explaining their behavior,

and giving the therapist clues to an understanding of their behavior. Though, when combined, the categories of Nonattention and Statement of Condition account for approximately 70 per cent of all behavior in both groups, further examination of the data shows that group A is much more verbal in a social sense, while group B is more often nonattentive, that is, does not interact with the therapist, or interacts in a way that does not elicit interactive responses from him.

The large number of hostile feelings conveyed by group B is the second major difference between the two groups; group A showed only a small number of such feelings. This finding would be expected, since all the children in group B were described as having serious problems of hostility interfering with their personal and social effectiveness in the nursery school. The fact that all were disturbed, in the sense of having hostile attitudes, probably explains the marked absence of overt anxiety in this group. Mention of overt fears and anxieties was lacking in both the teachers' descriptions and the longitudinal records. Actually, though the difference was not a large one, the children without problems expressed more anxiety than did the children with emotional problems.

Certain minor differences between the two groups reinforced group B's pattern of more frequent hostile behavior. These children tended to be more forbidding, more prone to attack and threaten to attack, and more likely to use physical barriers to block or restrain the therapist. There was also some indication that dependency, often associated with hostility, was more frequently expressed by group B, in the sense of frequently asking questions and in the assertive quality of their behavior. Along with the tendency of group A children toward more verbal interaction on a friendly, social level, there was more Joint Participation in Activity with the therapist and more Seeking Permission. These children were also more assertive in the sense of orienting the therapist to his role and function, directing by suggestion, and denying the validity of the therapist's statements or actions when his behavior did not satisfy the child.

Both groups of children devoted at least one third of their time to behavior that did not directly involve interaction with the therapist. By choice, all the children spent much of their time playing alone and working through their ideas and feelings, without seeking the support or help of the therapist. This fact seems to emphasize the value to children of being free to operate on their own in the therapy setting. It also shows that had recorded transcriptions of verbal exchange been used as the basis for this study, approximately 47 per cent of the behavior of children in group B and 33 per cent of the behavior of children in group A would have been lost.

The data seem to indicate that such approaches as reward, praise, affection, giving reassurance, and so on have been overemphasized in such interaction. In the nearly 10 thousand observations made in this study, the chil-

dren did not once seek reward or affection; they looked for praise only once and for reassurance only three times. Only rarely, or not at all, did the therapist find these methods useful or necessary in his approach to the children.

In terms of time, approximately 1 per cent only of the disturbed child's behavior was spent in the destructive expressions—such as physical attack on the therapist or play materials—so frequently associated with children having severe emotional problems. Hostile feeling, great or little, was indicated in only about 8 per cent of all the expressions of the group with emotional problems; 92 per cent showed little or no hostility. These children exhibited considerable positive behavior; such behavior is sometimes overlooked, while the more dramatic negative expressions are stressed.

III. *Do certain kinds of behavior in the therapist consistently produce certain reactions in children in therapy?*

In addition to analyzing therapist behavior in play therapy interaction in terms of its basic components and the child's behavior in a similar fashion, we attempted to view behavior episodes involving child-therapist interaction as a unit; that is, the initiating category of the therapist and the child's response to it. This unit is here called an "interaction sequence."

A total of 1,882 interaction sequences initiated by the therapist were analyzed. The criterion for selecting categories upon which the analysis was made were: (*a*) having a frequency of 35 or more, and (*b*) having high stimulus properties. Analyses of the categories follow.

Offering Verbal Information. The therapist initiated an interaction sequence with this type of behavior a total of 688 times. There were five major kinds of responses from the children: Attentive Observation, Statement of Condition or Action, Seeking Information, Recognition of Stimulation, and Rejection by Ignoring or Evading of Stimulation. When the therapist gave verbal information, both groups responded approximately the same number of times by expressing a Statement of Condition or Action, by Seeking Further Information, or by Rejection. The group without problems responded nearly three times as often by simply watching or listening. Group B used twice as many Recognition of Stimulation responses. However, these are not real differences, since watching and listening are nonverbal forms of recognition.

Orienting the Child to Time. The therapist initiated interaction by structuring time a total of 51 times. The children's primary responses to this approach were: Statement of Condition or Action, Recognition of Stimulation, Rejection by Ignoring or Evading Stimulation, and Rejection by Changing the Subject. Each of these responses occurred approximately the same number of times in both groups. In both groups rejection by nonrecognition was the most frequent response to the therapist's structuring of time.

Orienting the Child to His Role by Leaving the Responsibility of Decision to the Child. This analysis is based on data obtained with group B only, since the therapist used this category only 6 times with group A. On the basis of 36 episodes with group B, the responses were equally divided among Statement of Condition or Action, Recognition, and Rejection by Nonrecognition.

Directing by Suggestion. In a total of 41 interaction sequences involving this category, both groups responded in almost the same way, in the great majority of instances by Straightforward Cooperation.

Interpretation. A total of 964 episodes of interpretation were analyzed, involving the first six subcategories of interpretation; that is, by restating the content of a remark, by stating the content of motor behavior, by restating verbalized feelings, by recognizing feelings of motor behavior, by clarification of verbalized feelings, and by clarifying feelings present in the child's total behavior. Three types of responses dominated: Statement of Condition or Action, Recognition, and Rejection by nonrecognition of stimulation.When the therapist used interpretation by simple restatement, the responses were Recognition 54 per cent of the time, Statement of Condition or Action 23 per cent of the time, and Rejection by Nonrecognition 23 per cent of the time. When the therapist interpreted by restating the content of motor behavior, the responses were Recognition 56 per cent of the time, Nonrecognition 30 per cent of the time, and Statement of Condition or Action 14 per cent of the time. When the therapist interpreted by restating verbalized feelings, recognizing feelings of motor behavior, or clarifying verbalized feelings, the children's responses were similar; that is, they responded with Recognition about 60 per cent of the time, Rejection by Nonrecognition about 25 per cent of the time, and Statement of Condition or Action about 15 per cent of the time. The therapist interpreted by clarifying feelings present in the child's total behavior only 16 times throughout the course of the play sessions. The response was Recognition in 8 instances, Nonrecognition in 4, and Statement of Condition or Action in 2. In addition to these major types of response to the therapist's interpretations, the children occasionally responded by watching and listening, seeking information, and rejection.

Frequencies too low to be meaningful were found in a sequential analysis of several other categories: Offering Information by Demonstration and Explanation, Reassurance, Forbidding and Restricting (all categories), Directing by Command with a Threat, and Directing by Command.

Discussion

It should be pointed out that no sequential analysis was made of several categories representing major aspects of the therapist's behavior. Thus, Attentive Observation was not analyzed because it is primarily a response

category; that is, the child either played alone while the therapist observed or responded in a way that made it difficult to determine the relationship between the child's response and the therapist's behavior. Statement of Condition or Action and Recognition were also omitted, as essentially response categories. Seeking Information about an ongoing activity was omitted on the basis of the finding that most of the children's responses to this category were in the nature of giving verbal information.

Whenever the therapist gave verbal information the children in both groups responded by exploring the information further, simply recognizing it, or failing to recognize it. Approximately 80 per cent of the responses led to some kind of recognition or further exploration. Apparently this form of therapist behavior is generally accepted and used by the child in his therapy experience. Such information concerned the child's immediate experience in play therapy; information regarding the therapist's view of the meaning of the child's behavior was considered under an Interpretation category.

Orienting the Child to Time is apparently not well received by either group of children. Approximately 50 per cent of all the children rejected it, and in addition the children of group B expressed hostility to the structuring of time in the play session. Neither group, apparently, wished to leave the play situation, but group B perhaps found it more difficult than group A to accept its termination, and therefore expressed hostility toward the therapist.

In this study the therapist structured the experience by leaving decisions to the children of group B more often than to those of group A, owing to the greater tendency of the children with emotional problems (group B) to ask the therapist to make decisions for them and to be unresponsive when asked to make such decisions.

The therapist's use of suggestion as a way of directing the child was well accepted. The children consistently responded with Straightforward Cooperation. Interestingly enough, the children with emotional problems almost always accepted the therapist's suggestions. These suggestions did not restrict or order behavior; rather, they encouraged children to carry out their ideas, to feel free to move about in the situation, and to find alternatives for impossible goals.

The relationship between therapist and child behavior in response to Interpretation was particularly interesting. Within the first six types of this category (see above), the children's responses were of approximately the same number and kind, with acceptance of the therapist's interpretation leading all other responses. As the therapist's interpretation departed further from the child's concrete activity or verbal expression, there was a slight tendency toward increased acceptance and decreased nonrecognition. When the therapist attempted to respond to a totality of behavioral clues, rather than simply to verbal content or motor expression, a greater percentage

of the total responses of the children involved acceptance. Interpretation that departed from the immediate experience of the child in therapy, that was based on past history or previous child associations, was not used at all by the therapist. It is therefore impossible to say, on the basis of this study, whether the child would accept or reject this type of interpretation.

Sequential analysis of the Interpretation categories revealed no essential differences in group A and group B in response to this technique. The one exception was in responses to Interpretation by Restating Verbalized Feelings; here the recognition responses of group A were nearly twice those of group B. Apparently the presence of emotional problems is not a relevant factor in influencing the child's response to interpretation that is based on immediate behavior.

IV. *Do certain types of child behavior consistently produce certain reactions from the therapist?*

A total of 771 interaction sequences initiated by the child were analyzed. The same criteria were used in selecting child categories for sequential analysis as in selecting therapist categories, namely, a frequency of at least 35 and high stimulus value. Only three categories met these criteria: Seeking Information, Directing by Suggestion, and Directing by Command.

Seeking Information. The therapist responded in three major ways when children sought information: with Attentive Observation, Giving Verbal Information, and Seeking Information. In about 73 per cent of instances the therapist gave the information requested; in 14 per cent he responded with a question—that is, himself sought information; and in 13 per cent he simply listened and observed. There were no important differences in responses to the two groups. Occasionally the response of the therapist was to orient the child or make an interpretation.

Directing by Suggestion. The therapist responded to this form of child behavior with Straightforward Cooperation, in approximately the same number of instances with both groups. Occasionally he responded by Attentive Observation and Seeking Information.

Directing by Command. Again, the therapist's predominant response was to cooperate. In response to 18 per cent, he sought information; in response to 11 per cent, he made an interpretation. No particular differences appeared in relation to the two groups. Occasionally the therapist responded by Attentive Observation, Statement of Condition or Action, Giving Verbal Information, Recognition, and Noncooperation.

A sequential analysis on several other categories showed frequencies too small to give meaningful results. Such analyses were made on all categories of Forbidding, Criticism, Attack, Threat of Attack, and some categories of Seeking Help, Seeking Reassurance, Seeking Praise, Seeking Permission, Seeking Attention, and Command Accompanied by a Threat.

Discussion

The therapist's general response to the child's seeking of information was to give the information requested. This response accounted for about 75 per cent of instances. The remaining responses left the child to cope with the problem. From the therapist's point of view, information was given mainly when it was not easy for the child to obtain it on his own. Most requests for information from the child involved simple, factual matters. Usually the child asked the location of particular toys or other materials in the room. When it was possible for the child to obtain this information on his own, the therapist encouraged him to explore the environment for himself; but in most instances the therapist felt that simply giving the information requested served the purpose better and allowed the child to make better use of his energies in using the material and exploring the play experience. Thus the therapist aimed to help the child get started in his play experience, rather than to create a dependency relationship. When he felt that it was better to encourage the child to use his own resources in finding the solution, he simply listened to the child's request, responding with a question, or leaving the responsibility of making a decision to the child (Orienting the Child's Role).

Directing by Suggestion from the child was answered almost always by cooperation with both groups of children. In a small number of instances the therapist paused, in Attentive Observation, or sought information, before cooperating, thus giving the child time to explore the play situation on his own.

When the children used Directing by Command, the therapist generally accepted this behavior and responded by cooperating. Most of these commands were simple, such as "Hand me the darts," or "Give me the ball," rather than attempts to direct the therapist with more dynamic implications for control of the relationship. Several other responses were used, particularly when the therapist felt it important for the child to operate on his own. Whenever the command involved some issue in the relationship as the therapist perceived it, he left the resolving of the situation to the child; this he did by delaying a direct response to the child's request, seeking information, making an interpretation, observing attentively, stating a condition or action, giving information, recognizing the command, and, occasionally, refusing to cooperate.

Summary and Conclusions

The development of a comprehensive predetermined category system for measuring adult-child interaction was the basis for an objective analysis of therapist-child interaction in play therapy. A total of 82 adult and 72 child categories in the schedule were accompanied by anxiety-hostility

ratings. The behavior of both child and therapist, in terms of these categories and ratings, was recorded every five seconds. Reliability, based on percentage of agreement between two independent observers, was 92.44 for the combined recording of the behavioral categories and the anxiety-hostility ratings. The observer, who was not familiar with the children in the study, was in an observation room fitted with sound amplification and a one-way vision mirror.

Two groups of nursery school children, similar in age and in socio-economic backgrounds, were observed in 18 play therapy sessions. The children were classified in two groups of five each: group A, without serious emotional problems, and group B, with emotional problems serious enough to interfere with effective personal and social relations in the nursery school. Children were placed in one of these groups on the basis of complete agreement among three judges—a nursery school teacher, a student teacher, and a psychologist—who used observation and data in the Merrill-Palmer longitudinal records as the basis for their judgment. With one exception in each group, observed for one session only, each child was observed for two 40-minute play sessions, scheduled three days apart, providing a total of 18 play therapy sessions. The same therapist saw all the children. The conclusions were as follows:

I. Data obtained from 9,084 observations of the therapist's behavior and an equal number of anxiety-hostility ratings were summarized. The five categories appearing most frequently were: Attentive Observation, Recognition of Stimulation, Offering Verbal Information, Interpretation by Restating Verbalized Feelings, and Seeking Impersonal Information. Together, they accounted for 84 per cent of the therapist's interaction with the children. The therapist's primary emphasis was on *being there,* interacting with the child by observing, listening, and making statements of recognition. His behavior lacked supportive or reward approaches to the child, expressions of affection or punishment, criticism, and evaluation, and seldom showed use of forbidding and restricting. He responded in nearly the same way to both groups of children (rank order correlation, .886).

2. Data obtained from 9,544 observations of the children's interactive behavior and an equal number of anxiety-hostility ratings, summarized for the two groups, showed more similar than divergent behavior in the two groups of children (rank order correlation, .694). The behavior categories appearing most frequently in both groups, accounting for about 95 per cent of responses, were: Nonattention, Attentive Observation, Statement of Condition or Action, Seeking Information, Giving Information Verbally, Recognition of Stimulation, and Nonrecognition of Stimulation. The most significant difference in behavioral categories (.01 level) between the two groups was in Nonattention: group B, with emotional problems,

showed such behavior 47 per cent of the time; group A, without emotional problems, 33 per cent of the time.

Differences between the groups were probably related to the kinds of emotional problems in group B. These children spent considerable time in noninteractive behavior; that is, in fantasy, play, or other activity that excluded the therapist; or they responded in a way that discouraged interaction. In comparison, the children of group A interacted significantly more often by talking about friends, school, home, and other conditions in their lives. They also explained their behavior more often and gave the therapist more clues to an understanding of their behavior.

The children of group B showed a significantly greater number of hostile feelings, tended to be more forbidding, more prone to attack and threaten to attack, and to block or restrain the therapist. However, such behavior was infrequent in both groups. Dependency behavior was expressed more often by the children of group B, while the children of group A tended to be more assertive.

Both groups spent about one third of their time in behavior that did not directly involve interaction with the therapist; that is, in playing alone and working through ideas and feelings without support or help. None of the children sought reward or affection; they looked for praise only once and reassurance only three times.

The disturbed children (group B) spent only 1 per cent of their time in destructive behavior. About 8 per cent of their expressions involved some or much hostility, while 92 per cent conveyed little or none. Thus, these children significantly more often expressed positive, accepting behavior than negative, rejecting behavior.

3. A total of 1,882 interaction sequences initiated by the therapist and the children's responses to them were analyzed. When the therapist gave information, the children in both groups responded by exploring the information further, by simply recognizing it, or by failing to recognize it. About 80 per cent of their responses involved some kind of recognition or further exploration. Structuring of time resulted in some kind of rejection 50 per cent of the time. Suggestions were well received, and were responded to almost consistently by cooperation. Acceptance led all child responses to the therapist's use of interpretation. As the interpretation departed further from the child's concrete activity or verbal expression, the number of acceptances increased and the number of rejections decreased. Interpretation based on past history or associations with the child from previous play sessions was not used by the therapist. However, the more holistic interpretations, based on total behavioral clues rather than isolated expressions, resulted in more acceptance and less rejection.

4. A total of 771 interaction sequences initiated by the child were analyzed. When the child sought information, the therapist gave it about 75

per cent of the time and left the child to cope with the problem the remaining 25 per cent. Information was given mainly when it involved the location of particular toys or materials. In general, the therapist responded by cooperation to the child's suggestions. Similarly, he generally responded to simple commands by acceptance and cooperation. Briefly, when the child's request did not tend to create a dependency relationship or to dominate or control the therapist, the response was generally acceptance and cooperation.

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